SOUTH MARKETING ISSUE
Pages 9-16

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A WEEKLY NEWSPAPER FOR THE FARM CHEMICAL MANUFACTURER, FORMULATOR AND DEALER

Published by The Miller Publishing Co., Minneapolis, Minn.

Vol. 5 | Accepted as Controlled Circulation Publication at Minneapolis, Minn. | MAY 19, 1958 | Subscription Rates: $5 for 1 year, $9 for 2 years | No. 20

Infestation of Desert 'Hoppers Under Control

State-Federal Project Halts Migration, But Some Crops Damaged

PHOENIX, ARIZ. — Some 140,000 acres of desert area, bordering valuable irrigated croplands, were sprayed by air during a period of ten days which ended during the week of May 12. The effort was to control a large infestation of desert locust, or banded-winged grasshoppers migrating from the desert into adjacent green fields of cotton and vegetable crops.

W. T. Mendenhall, Arizona state entomologist, told Croplife in a telephone interview, that these grasshoppers, though often becoming numerous, seldom do damage of economic importance.

Factors thought to contribute to the unusual current activity of the hoppers, he said, included the fact that Arizona has experienced two consecutive mild winters which enabled an unusually heavy overwintering population to survive; and the area this spring has had much more rain than usual, creating an environment more attractive for the insect. The area of infestation, Mr. Mendenhall said, has received some 4 in. of rainfall already this year, which is more than half that of the entire year ordinarily.

The grasshopper control program, a cooperative effort the cost of which is borne by the state and federal governments and farmers, covered a linear distance of some 100 miles be-

(Turn to GRASSHOPPERS, page 20)

Agricultural Potash Deliveries Down 6% In First Quarter

WASHINGTON—Deliveries of potash for agricultural purposes in the U.S., Canada, Cuba, Puerto Rico and Hawaii by the eight principal American producers totaled 929,326 tons of salts containing an equivalent of 544,204 tons K_2O during the first three months of 1958, according to the American Potash Institute.

This was a decrease of 6% in salts and K_2O under the same period in 1957. Continental United States took 521,974 tons K_2O; Canada, 15,813 tons; Cuba, 2,573 tons; Puerto Rico, 300 tons, and Hawaii, 3,544 tons K_2O. Exports to other countries were 50,489 tons K_2O, a decrease of 31%.

Deliveries of potash for non-agricultural purposes for the first quarter amounted to 27,830 tons K_2O, a decrease of 8% under last year.

Total deliveries for all purposes were 1,059,699 tons of salts containing an equivalent of 622,523 tons K_2O, a decrease of 9% in salts and K_2O under the first quarter of 1957.

Pesticide Supply Reported Ample For Anticipated Needs of Season

Disappearance of Some Major Pesticides by Crop Years, and Minimum Requirements in 1957-58[1]

Pesticide	Domestic disappearance domestic consumption in 1954-55 1,000 lb.	1955-56 1,000 lb.	1956-57 1,000 lb.	Minimum requirements for 1957-58 1,000 lb.
Aldrin, chlordane, dieldrin, endrin, heptachlor, and toxaphene (combined)[2]	54,400[8]	61,570	52,500	45,000
Benzene hexachloride[3]	7,800	9,450	6,600	8,000
Calcium arsenate	3,911[8]	23,000[8]	18,250	15,000
Copper sulfate[4]	77,988	74,920[8]	78,600	30,000[8]
2,4-D (acid equivalent)[5]	28,000	28,000[8]	24,500	25,000
DDT	61,800	75,000	71,000	65,000
Lead arsenate	13,269[8]	11,500[8]	12,000	10,000
Pyrethrum[6]	7,644[8]	6,961	7,396	7,000
Rotenone[7]	5,954	6,350	6,224	6,000
2,4,5-T (acid equivalent)[5]	2,500	4,400[8]	2,200	2,500

[1]Based on available information; crop year is from Oct. 1 to the following Sept. 30.
[2]Corrected for exports only at basic producer level.
[3]Gamma isomer basis; includes lindane.
[4]Disappearance for all domestic uses including industrial; requirements for agriculture only but include plant nutrient as well as fungicide use.
[5]Export data not being reported separately, figures represent total disappearance at producers' level.
[6]Imports; includes estimated flower equivalent of imported pyrethrum extract.
[7]Imports; includes cube and derris, both whole root and powdered.
[8]Revised figure.

WASHINGTON — Production of pesticides, their rate of disappearance during 1957 and previous years, and minimum requirements for the current crop season are among the statistics presented in the "Pesticide Situation" just issued by the U.S. Department of Agriculture. Prepared by Harold H. Shepard of the Commodity Stabilization Service, Food and Materials Requirements Division, USDA, the report states that the total supply of pesticides is expected to be ample in 1958, although some of the recently-developed pesticides, or those for special uses, could be in short supply. Requirements for older materials, on the other hand, should be met with relative ease.

The report says that production of synthetic organic chemicals intended primarily for use in pesticidal preparations has grown steadily. Production of inorganic pesticides (arsenical insecticides, copper sulfate for fungicide use, sodium chlorate and boron chemicals for herbicides and defoliants, zinc sulfate, and ground sulfur) has remained fairly constant for several years. This inorganic production is roughly 450 million lb. annually, nearly two-thirds of which is ground sulfur.

Domestic disappearance during the 1957 season of major pesticides such as benzene hexachloride, calcium arsenate, DDT, 2,4-D and 2,4,5-T, was down appreciably from the previous year (table on page 1). This was undoubtedly offset in some degree by the growing development and use of newer materials, especially organic phosphorus insecticides, for which few statistics are available.

Exports of pesticides in 1957 increased 5.1% in dollar value over the previous calendar year.

The Schedule B export classifica-

(See PESTICIDES, page 8)

1,000 TO ATTEND . . .

NPFI Program Includes Talks By Government, Industry Men

WASHINGTON—Fred C. Scribner, Jr., under secretary of the treasury, will be the principal speaker at the annual meeting of the National Plant Food Institute, at the Greenbrier, White Sulphur Springs, W.Va., June 15-18. He will speak at the morning session June 17.

Other prominent features on the program will include two panels on "Changing Farmers' Attitudes Toward Fertilizer" and "Changing Farmers' Fertilizer Practices" plus a time-lapse motion picture on "Watching Fertilizer Work" by John Ott, Winnetka, Ill.

Officers of the Institute estimate the attendance at approximately 1,000 fertilizer manufacturers, scientists and other agricultural leaders.

Meetings of the Institute's Executive Committee and board of directors are scheduled for June 15 and a meeting of the board will also be held on June 18. The annual business meeting of the membership will be held at the morning session on June 16.

John A. Miller, Price Chemical Co., Louisville, Ky., president of the institute, will preside at the convention sessions.

On June 16, the program will feature a panel discussion on "Changing Farmers' Attitudes Toward Fertilizer" with Dr. M. S. Williams, chief agricultural economist of the institute, speaking on "Farmers' Present Attitudes;" Dr. Webster Pendergrass, dean, College of Agriculture, University of Tennessee, on "What Can State Agricultural Colleges Do?"; and W. E. McGuirk, chairman, National Plant Food Institute Special Study Committee, on "What Can Industry Do?"

The panel will be followed by a presentation "What is the National Plant Food Institute Doing" featuring brief regional reports on the sub-

(Turn to NPFI, page 20)

Southern States To Build New Plant

RICHMOND, VA. — Southern States Co-operative has announced plans to erect a granular fertilizer plant, with capacity of 60,000 tons, near Russellville, Ky. The plant, which will cost about $750,000, is expected to be in production next spring.

Southern States now operates seven mixing plants in its six-state territory, but this will be its first granular unit.

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Hugo Riemer Leaves Nitrogen Division Post

NEW YORK—Hugo Riemer has left his post as president of the Nitrogen Division of the Allied Chemical & Dye Corp., it was announced here recently. This move terminated 23 years of service which began in 1935 when he joined the legal department of the corporation.

Mr. Riemer has not revealed his plans for the future and as of May 14, Allied had not appointed a successor.

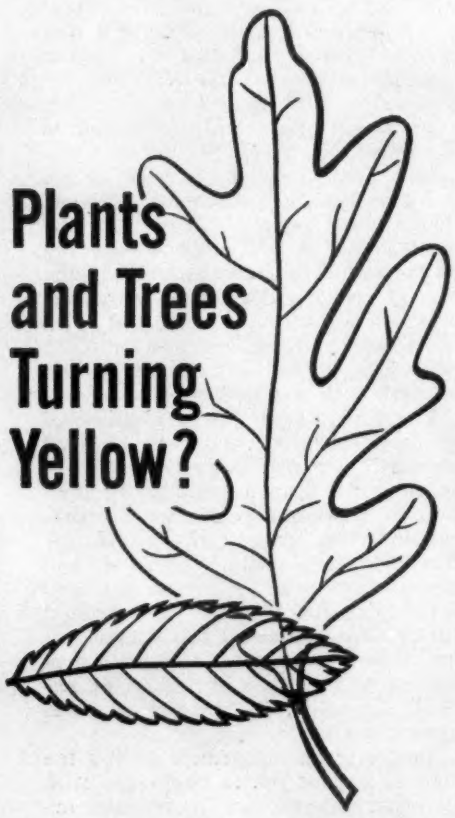
Well known in the agricultural chemical industry, Mr. Riemer represented his company in the National Plant Food Institute as a director and as a member of the NPFI executive committee.

He was named assistant to the president of the Solvay Process Division of Allied in 1945. Five years later he became executive vice president of the division and in 1952, when the Nitrogen Division was formed, Mr. Riemer became its president.

Experimental Labels Approved for Sevin

NEW YORK—Experimental labels covering the use of Sevin insecticide for control of insects attacking pears, beans, and grapes have been accepted by the U.S. Department of Agriculture, according to Dr. R. H. Wellman, manager, Crag Agricultural Chemicals Dept., Union Carbide Chemicals Co., Division of Union Carbide Corporation.

Dr. Wellman said the Food and Drug Administration has concurred with the registration of Sevin for experimental use, and has established a temporary tolerance of 10 p.p.m. under provisions of the Miller Amendment. Sevin can now be sold in limited quantities to experienced growers for field testing only on pears, beans, and grapes. Union Carbide earlier this year announced USDA clearance of Sevin for experimental use on apples.



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J. A. Watson F. G. Dilger

Virginia-Carolina Names Analyst and Manager

RICHMOND, VA.—John A. Watson and Fred G. Dilger have joined Virginia-Carolina Chemical Corp. as economic cost analyst and manager of the systems department, respectively.

Mr. Watson, a native of Chicago, was with Tee-Pak, Inc. for the past nine years. At V-C, he will assist the company's fertilizer division on budgets, cost and production control. He attended Northwestern University and LaSalle Extension University.

The manager of the systems department joins V-C from Peat, Marwick, Mitchell and Co. of New York where he was a consultant. Mr. Dilger is a native of Ridgewood, N.J. and a graduate of Georgetown University.

The systems department at V-C analyzes current methods, promotes improved techniques, and keeps management informed on possible application of new data processing equipment.

Fertilizer Research Program Established

LUBBOCK, TEXAS — A fertilizer research program for West Texas has been started by the state experimental stations and the Texas Agricultural Extension Service. Research will be conducted in various parts of this area by the Lubbock Field Station and Halfway Field Station. County agents, farmers and businessmen will assist with the work.

A newly formed Soil Fertility Committee has agreed to supply $14,500 annually for the work, according to Charles Fisher, who is superintendent of the Lubbock station. This committee is composed of several farmers, businessmen and leaders in the agricultural chemical field.

County agents will be responsible for finding sites on area farms for the trials and will work with the technicians and farmers in supervising the trials.

To determine the type of fertilizers needed, soil samples of each test plot will be taken and analyzed in the soils laboratory at Texas Technological College.

About 20 chemical companies are donating the fertilizers, as well as advice and technical information on the materials used. Although fertilizers have been used several years, there is still a need for accurate tests to find out the kinds and amounts needed.

The interest in this research work is very high, because the sale of fertilizer has boomed from about half a million dollars in 1953 in 18 West Texas counties to more than five millions last year.

In recommending fertilizer to farmers, Mr. Fisher says that about 50 lb. nitrogen per acre for cotton should be applied, but grain sorghum may require from 60 to 120 lb. These recommendations are for irrigated fields only.

South Carolina Fertilizer Consumption Shows Drop

CLEMSON, S.C. — April fertilizer shipments in South Carolina totaled 172,505 tons, a decline from 199,381 tons in April last year. The July-April shipments this fiscal year amount to 576,157 tons, down 19.5% from 715,499 tons in a corresponding period a year earlier.

B. D. Cloaninger, director of the state department of fertilizer inspection and analysis, reminds that the 3-9-9 (less tobacco) and 6-9-3 grades in dealer warehouses should be disposed of by July 1. The 6-10-4 grade replaces the 6-9-3 grade as a plant bed fertilizer.

New Chemagro Corp. Insecticide Registered

KANSAS CITY — Registration of the new insecticide "CO-RAL" by the U.S. Department of Agriculture for control of cattle grubs, screw-worms, hornflies, lice and ticks on livestock has been announced here by the Chemagro Corp.

"CO-RAL" was developed by Farbenfabriken Bayer A.G., Leverkusen, West Germany, and was formerly known as "Bayer 21/199." It has not been registered yet for treatment of dairy animals.

A 25% wettable powder, the product is mixed with water and applied with conventional spray equipment. In the control of cattle grubs only one treatment per year is required if it is applied soon after heel fly activity terminates, the company said.

Michigan Agents Launch Pesticide Safety Appeal

EAST LANSING, MICH.—Better usage of pesticides and herbicides—with the safety factor considered too—is the aim this spring of a Michigan-wide appeal by county agricultural agents.

The county agents, backed up with promotional efforts from the Michigan State University campus, urge both farm and city residents to "take time to get acquainted with pesticides and herbicides before you use them this coming season."

The get-acquainted time will be well spent, they contend, in terms of a good control job and safety to humans, animals and valuable plants.

The agents are urging a simple 1-2-3-4 check-list approach:

One—Read the label and follow instructions carefully.

Two—Apply the recommended amount of the right material to the insects or plants at the right time.

Three—Dispose of empty containers in a safe manner.

Four—Store surplus materials in original, marked containers, out of reach of children, pets or unsuspecting visitors.

Yields of Corn, Peanuts Have Risen Sharply In South

Average yields of corn and peanuts in Florida have shown tremendous increases in recent years. J. R. Henderson, agronomist with the Florida Agricultural Extension Service, says the increases are due mainly to improved cultural practices and better varieties, particularly of corn.

Thirty years ago the average yield of peanuts on 49,000 acres in Florida was 575 lb. per acre. Ten years later it had increased to 750 lb. per acre on an acreage of 75,000. In 1948 the 110,000 acres of peanuts averaged 775 lb. per acre while in 1956 the yield was up to 1,093 lb. per acre.

The largest increases in yield came in the last 10 years. The average yield for the five-year period 1948-52 was 809 lb.; while the yield for the period 1953-57 was 973 lb. per acre.

In corn the increase in yield has been even more pronounced, particularly in the last 10 years. Between 1928 and 1948 the state's average yield of corn ranged from 10 to 11 bu. per acre. By 1956 it had jumped to 21 bu.

The five-year average yield for 1947-51 on 606,000 acres was 13.2 bu. For the period 1952-56 it was 18.3 bu. on 596,000 acres.

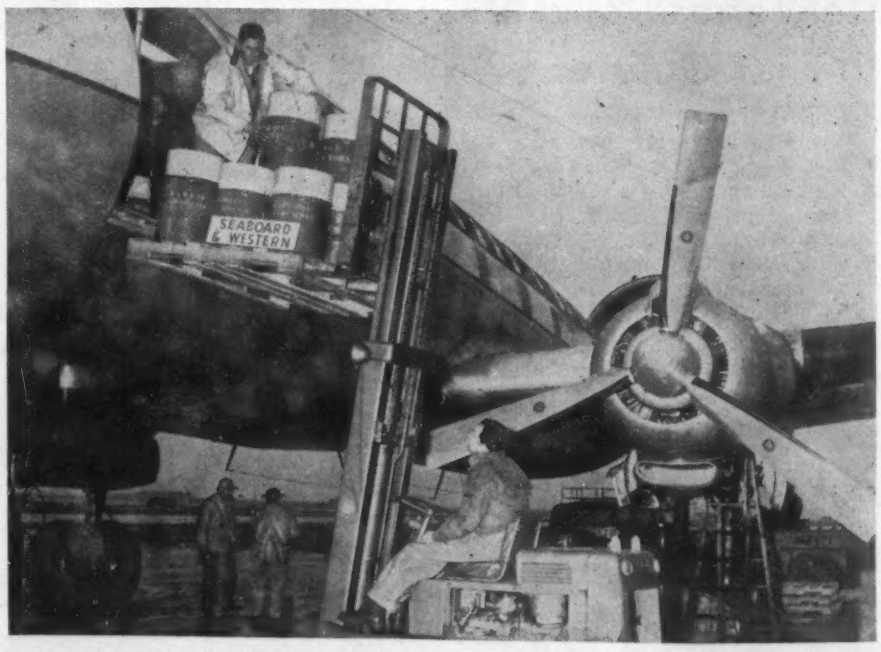
Mr. Henderson says this increase was accomplished by the use of leguminous cover crops, planting good seed of adapted hybrids, application of adequate amounts of fertilizer, and spacing plants in accordance with the fertility of the soil and its ability to supply moisture during the growing season.

It must be remembered that these are average yields. In 1957 there were numerous reports of corn yielding better than 100 bu., and some of peanuts up to 2,500 lb. per acre.

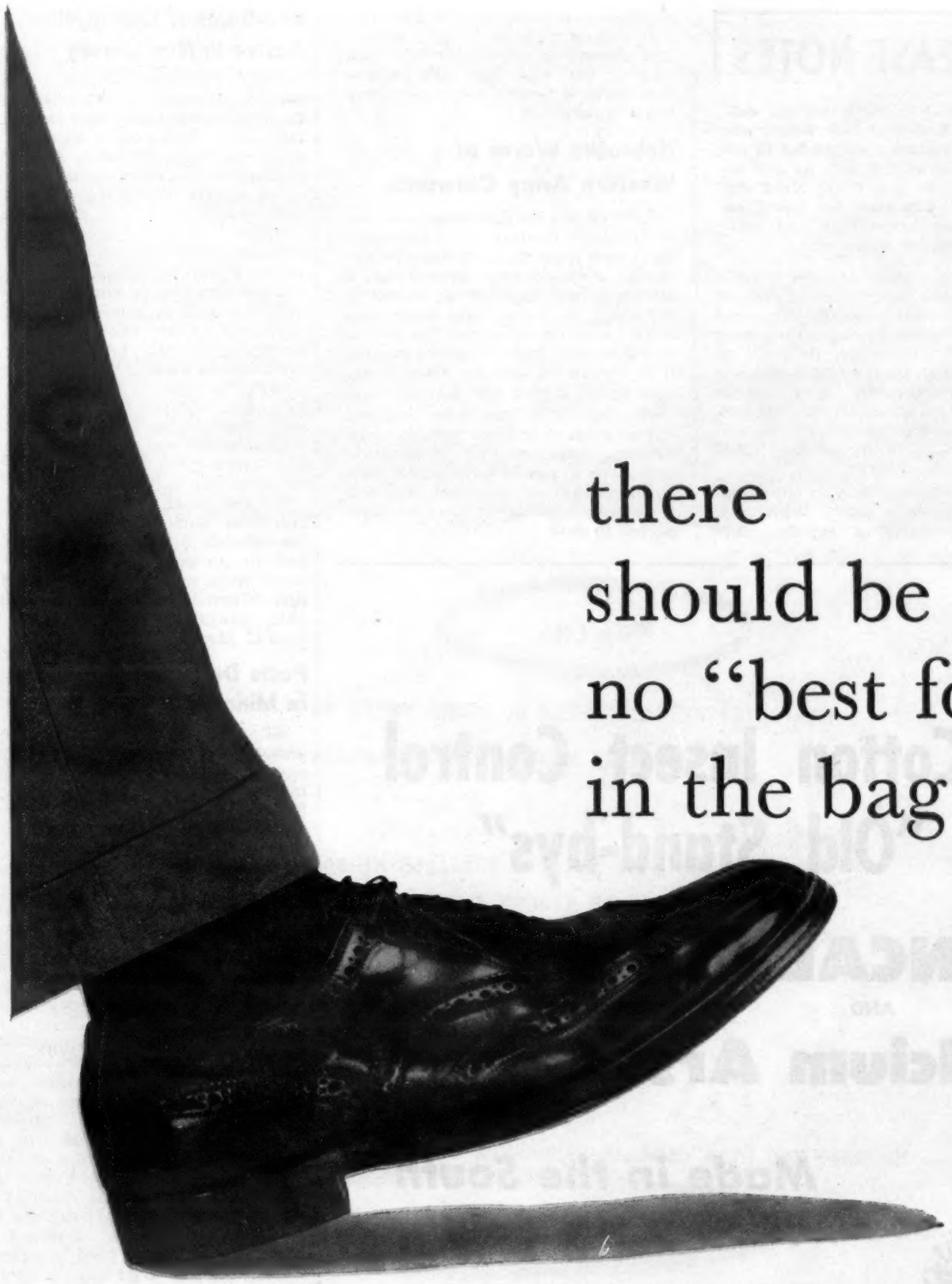
Hercules Powder Renews Grant-in-Aid Program

WILMINGTON, DEL.—Approximately $100,000 in unrestricted grants-in-aid is being distributed by Hercules Powder Co. to some 24 American colleges and universities. This is the third consecutive year Hercules has carried out this aid-to-education program, giving the schools complete freedom in the use of these funds.

"One of the principal goals of this program is to improve and expand the understanding between scientific personnel in industry and those on the college and university levels," said Albert E. Forster, president and board chairman of Hercules.



PYRETHRUM SHIPMENT—A shipment of 7,000 lb. liquid pyrethrum extract which arrived directly from Nairobi, Kenya Colony, is shown above being unloaded at International Airport, New York. The consignment was ordered by McLaughlin Gormley King Co., Inc., Minneapolis, and was supplied by the Pyrethrum Board of Kenya.



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INSECT AND PLANT DISEASE NOTES

Spittlebug Hatching Continues in Illinois

URBANA, ILL.—Hatch of overwintering spittlebug eggs is now practically complete throughout the state. Although occasional fields south of Highway 6 are moderately infested, by far the heaviest infestations are north of Highway 6. Here the infestation increases to the north and decreases somewhat to the extreme east side.

In this northern area, populations exceeding one per stem are quite common in first-year hay fields. Some fields average over four per stem. Spittlebugs have not been known to kill red clover or alfalfa, but they will reduce first-cutting yields, particularly in first-year hay fields. They do not normally interfere with second cuttings. In first-year hay fields, one nymph per stem is estimated to reduce yields of dry hay by 300 or more pounds per acre. Need for treatment can now be based on severity of infestation and estimated need for hay.

Pea aphid populations are increasing rapidly in many areas of Illinois. Although not yet generally numerous enough to cause damage, they soon could be. Furthermore, in areas of low moisture, they could become a problem. Fortunately, lady beetles and aphid parasites are present, although to a limited extent, and will be of some help in holding aphid populations in check.

Corn borers may develop later than in the past three years. With corn planting progressing rapidly, survival of corn borer in late June and July will be high. At present serious first-generation damage is not anticipated, but with high first-generation survival second generation may cause trouble.

Nebraska Warns of Western Army Cutworms

LINCOLN, NEB.—Scattered infestations of western army cutworms have been reported from western Nebraska. Farmers were advised that if alfalfa is not growing as expected, or wheat is being cut, these cutworms may be the cause. The worms are generally night feeders, making it necessary to look for them under crop debris during the day.

Weather conditions have reduced the invasion of another pest, the pale western cutworm. Due to moisture conditions in western Nebraska, serious damage this year is not expected. No heavy infestations have been reported to date.

Red-Banded Leaf Roller Active in New Jersey

NEW BRUNSWICK, N.J.—Reports have come from Camden County of red-banded leafroller larvae being active. Mites have hatched and Stethorus mite predators are active in many south Jersey orchards. Green apple aphids are curling leaves in some areas.

There has been a lot of scab weather in the past few weeks. So far we have seen no disease. Most growers are spraying or dusting at intervals of a week or less.

Weevils have chewed holes in strawberry leaves and blossoms in Hammonton area.

With so much moisture in the ground the plants should "take off" with first sunny days. With lush plants there will be more damage from gray mold. Some varieties are now starting in blossom.

All unsprayed alfalfa through central New Jersey should be sprayed immediately to control weevil, aphids (where present) and spittlebug. In most areas aphids are very hard to find. When larval damage is noticeable, sprays should be applied.—Leland G. Merrill, Jr.

Pests Developing In Minnesota

ST. PAUL, MINN.—Two-striped grasshopper (Melanoplus bivittatus) eggs on light soils were found to be in the eye spot stage in Todd, Pope, Kittson, Western Stearns and western quarter of Roseau counties. On heavier soils in these counties the two-striped grasshopper eggs were in the coagulated to segmentated stage. Red-legged grasshopper (Melanoplus femur-rubrum) eggs were mostly in the clear stage with some coagulation on lighter soils. Parasitism and predation on 'hopper eggs were light in the northwestern and central districts.

Sweet clover weevil (Sitona cylindricollis) found in northwest district on sweet clover. Cutworms were found while digging for 'hopper eggs.

Spruce needle miner (probably Recurvaria sp.) larvae are now actively attacking the needles of many spruce trees in this area. Forest tent caterpillar (Malacosoma disstria) as of May 5 showed no hatch in the area north of Cloquet. Aspen buds just showing green and no forest damage noted. Spruce budworm (Choristoneura fumiferana), as of May 6, had shown no general emergence in the International Falls area.

No Present Threat of Pests in Missouri

COLUMBIA, MO.—Pea aphids are building up in some southern counties, but there is little chance of extensive damage. If cool weather continues, the new growth might possibly need to be sprayed, but there is a good chance it won't.

There are still no armyworms, and as late as it is getting, there probably won't be any this year. Farmers are warned, however, to be on the watch for cutworms. This has been an ideal cutworm year, and we may still have trouble with them.

Hornflies are showing up on cattle, and as usual, there's confusion as to what can and can't, or should and shouldn't, be used to control them on dairy cattle.—Stirling Kyd.

Husk Flies Develop in Northern California

RIVERSIDE, CAL.—Walnut husk flies may develop into a widespread problem in northern California, according to Martin M. Barnes, associate entomologist at the University of California.

Already a serious pest in southern California, the fly has been found recently in walnut orchards of Napa, Mendocino, Santa Clara, Stanislaus and Kern counties. Mr. Barnes warned that the infestations may spread to adjacent areas.

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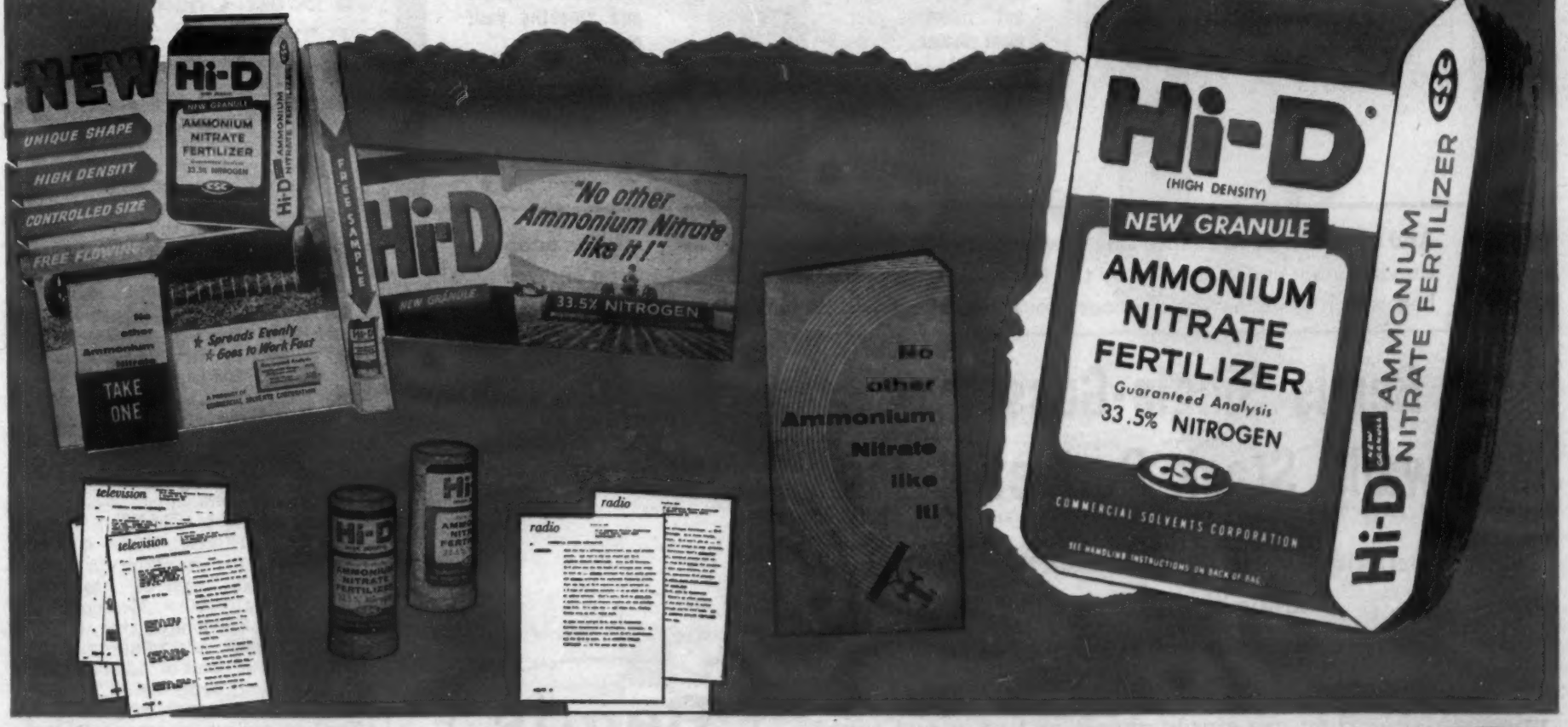

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Range Fertilization Profits Recorded In Ranch Test

BROOKS, CAL.—A definite yes answer to the question: "Does range fertilization really pay?" was provided by R. D. Karn, owner of the Karn Ranch here, in a recent statement concerning this important phase of ranch operation.

Range fertilization has produced a 6% return on money invested in a six month period, according to Mr. Karn, who claims that his carrying capacity has been increased four times. This has resulted in Mr. Karn's ability to turn his cattle on grass as much as two weeks earlier and thus cutting labor and feed costs as well as enabling him to increase his bonus beef production.

The Karn Ranch, working in cooperation with the Agricultural Extension Service of the University of California and farm advisor Carl Schoner, tested range fertilization by covering 34 acres with 400 lb. of ammonium sulphate per acre, and 48 acres with 200 lb. per acre while leaving 29 acres unfertilized as a check.

The acreage yield was figured after application and fertilizer costs were deducted, and Mr. Karn discovered that the land that received 400 lb. produced a net profit of $8.72 per acre over the unfertilized plot; while the 200 lb. rate yielded a net profit of $5.50 an acre more than the same unfertilized ground.

Mr. Karn has become so sold on the idea as the result of the test that he forecasts range fertilization as standard operation in the raising of cattle.

Alabama Sales Down

MONTGOMERY, ALA.—Fertilizer sales in Alabama during March totaled 184,939 tons, a decline from 196,032 tons in March, 1957, according to the Alabama State Department of Agriculture and Industries. Tonnage for the October-March period this fiscal year is 342,667, down from 392,396 in a corresponding period a year earlier.

Stepan to Dispose Of Ninol Plant

CHICAGO—The board of directors of the Stepan Chemical Co. has authorized the disposal of the Ninol Laboratories plant. Manufacturing operations of the firm will be consolidated in the Stepan Chicago plant. Stepan acquired Ninol last August.

First quarter sales of the firm totaled $3,942,358.85, a decline of 2.2% from sales of $4,031,875.30 in the first quarter of 1957, A. C. Stepan, Jr., president, has reported to stockholders. Figures for both periods include results of Ninol. Profit after taxes was $243,666.73 in the first three months of 1958, compared with $257,290.47 in the corresponding period a year earlier.

Farmers in West Being Forced Off Fertile Land Areas

FRESNO, CAL.—California's farmers are being driven off the more fertile land into the poorer valley basin lands and terraces.

This means they are being required to do a better job of farming to maintain or increase current production on poorer and poorer land, said a University of California soil scientist here.

Speaking at the banquet meeting of the 10th annual California Animal Industry Conference, Daniel G. Aldrich said that nearly 16% of the total cultivatible land in California has been diverted to non-agricultural use —nearly 3 million acres out of agricultural production.

"Since the advent of World War II, the rich valley lands have more and more been occupied by factories, freeways, homes, shopping centers, and recreational areas," he said. "Irrigated agriculture has shifted more and more to the poorer lands, the grain is planted still further up the slopes, and the sheep and cattle graze up beyond the grain.

"The conversion of highly productive agricultural land to non-agricultural use presents a stimulating challenge to the farmer and soil scientist alike, for both are confronted with the task of achieving, maintaining, and increasing present levels of production on inherently less productive lands."

Mr. Aldrich, chairman of the department of soils and plant nutrition on the Davis and Berkeley campuses, outlined to the group the steps being taken by university soil and water scientists to make better use of the poorer land, and get more land into profitable production.

"Before an appraisal of the future utilization of California soil resources can be made," he said, "we must first find out what those resources actually are, and what use has been and is being made of them.

"To date more than 30 million acres, slightly less than one third of the state's total area, have been surveyed in detail. There are about 11 million acres of agricultural and potentially agricultural areas for which detailed surveys are still needed."

Added Peanut Acreage To Boost Chemical Sales

PORTALES, N.M. — Peanut growers in this area are preparing to increase fertilizer and insecticide purchases as a result of a 35% increase in New Mexico's acreage allotment for Valencia-type peanuts.

Crops have been curtailed in the past because of a general oversupply of peanuts, but growers in this area —who raise only the large meaty Valencia type—have been pointing out that market demand for Valencias has always exceeded the supply.

Increases in state acreage allotments were announced by the U.S. Department of Agriculture as follows: New Mexico, 1,770 additional acres; Tennessee, 276 more acres; Alabama, 129 acres; Florida, 113 acres; Georgia, 59 acres; South Carolina, 18 acres, and Texas, 17 acres.

SHELL GRANT

STATE COLLEGE, N.M.—A $1,000 grant-in-aid for research in insect and nematode control has been donated to the New Mexico A&M Experiment Station by the Shell Chemical Corp., according to Dr. J. Gordon Watts, head of A&M's botany and entomology department. The fund will be used to support studies on the effects of various nematode controls on cotton and other crops and studies in the control of various livestock insects.

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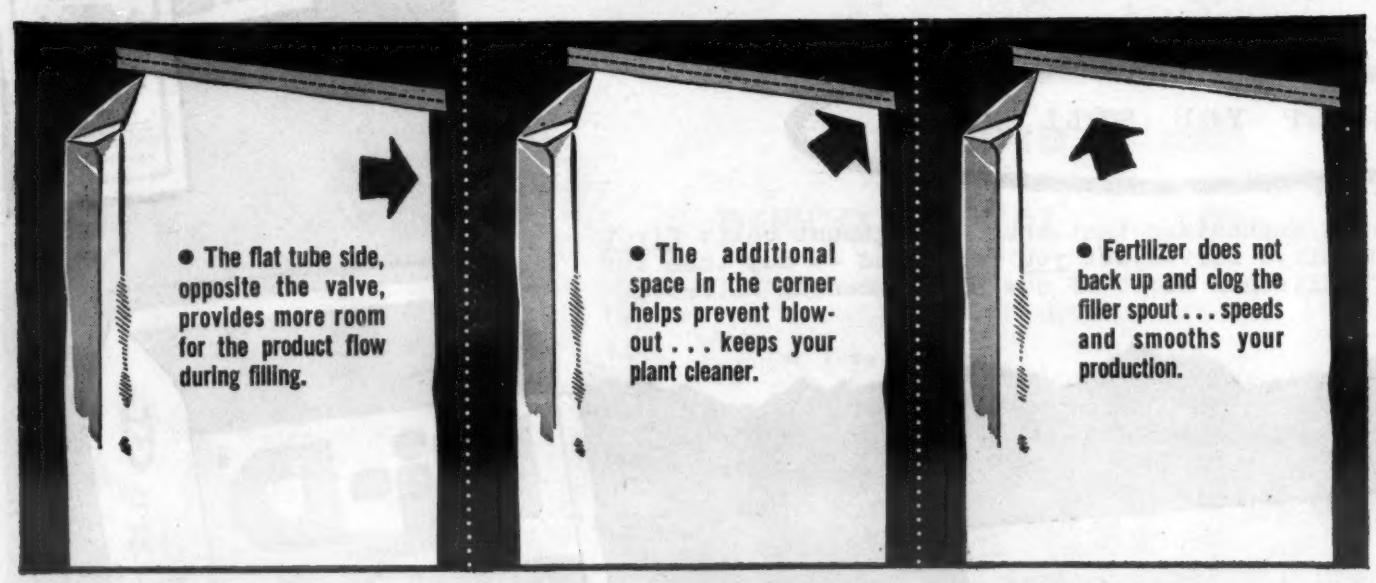
• The flat tube side, opposite the valve, provides more room for the product flow during filling.
• The additional space in the corner helps prevent blow-out . . . keeps your plant cleaner.
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And there is a good chance this new Bemis Multiwall will cost you less, too. The additional usable space created by the flat tube corner often permits the use of a shorter bag, which would save you money. Your Bemis Man will check this possibility with you.

Bemis Single-Gusset Multiwalls Stack Perfectly, Too

You can palletize Bemis Single-Gusset Multiwalls easily and firmly . . . and pile them three pallet loads high, if you wish. They square up well. In fact, you have to look rather closely at stacked bags in the warehouse to determine whether they are single-gusset or two-gusset types.

Bemis

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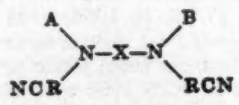
Industry Patents and Trademarks

2,833,639

Pre-Emergence Herbicide Control with Dinitro-Phenols. Patent issued May 6, 1958, to Keith C. Barrons and John D. Eastman, Midland, Mich., assignors to The Dow Chemical Co., Midland. A method which comprises applying to the soil surface of an area previously planted with a large seeded crop (a) an aqueous dispersion of a phytotoxicant selected from the group consisting of the 2,4-dinitro-6-loweralkyl-phenols and their water-soluble salts at a substantially uniform dosage of from 1 to 18 pounds of 2,4-dinitro-6-loweralkyl-phenol per acre and (b) an alkali at a substantially uniform dosage per acre of at least the weight of 2,4-dinitro-6-loweralkyl-phenol applied to said soil, said applications being completed at least 48 hours prior to the normal time for emergence of said crop plants.

2,833,640

Method and Compositions for Ammoniation of Soils. Patent issued May 6, 1958, to Frederick C. Bersworth, Framingham Center, Mass., assignor to The Dow Chemical Co., Midland, Mich. A composition for application to soil to induce ammoniation thereof comprising a solid carrier blended with a compound having the following general formula:



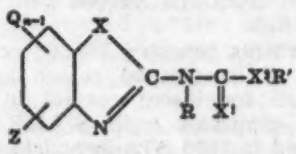
wherein X is an alkylene group which interposes two to three carbon atoms in the chain between the indicated nitrogen atoms; R is chosen from the group consisting of methylene, ethylene, isopropylene, trimethylene; A is selected from the group consisting of —CH_2CH_2OH and longer chain low molecular weight beta-hydroxy alkyl groups; B is selected from the group consisting of A, —CH_2COOM, and —RCN; and M is selected from the group consisting of hydrogen, alkali metal and ammonium.

2,833,656

Method and Means for Treating Perishable Agricultural Products. Patent issued May 6, 1958, to Arthur F. Kalmar and Hugh F. Fitzpatrick, Riverside, Cal., assignors to Food Machinery and Chemical Corp., San Jose, Cal. A method of treating perishable agricultural products which comprises contacting said products with an aqueous solution containing at least 0.02% by weight of a water soluble salt of orthophenylphenol, at least 0.5% by weight of hexamethylenetetramine, and also containing an alkaline substance in sufficient concentration to maintain the pH of said solution above a value of 11 to depress hydrolysis of said salt.

2,833,689

Fungicidal Compositions Comprising Benzothiazole and Benzoxazole Carbonic Acid Esters and Method of Control of Fungi. Patent issued May 6, 1958, to Henry J. Gerjovich, Wilmington, Del., assignor to E. I. du-Pont de Nemours & Co., Inc., Wilmington, Del. The method for the control of fungi comprising applying to organic material subject to fungus infection, in a fungicidally effective amount, a compound selected from the group represented by the formula



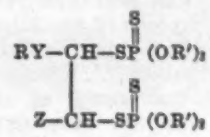
wherein X, X^1 and X^2 are selected from the group consisting of oxygen and sulfur, R is selected from the group consisting of hydrogen and lower alkyl groups of less than five carbon atoms, R' is an aliphatic hydrocarbon radical of less than five carbon atoms, Q is halogen, Z is selected from the group consisting of hydrogen and nitro, and n is a whole number less than 4.

2,833,687

Method for Controlling Nematode Infestations and Nematocides Useful Therefor. Patent issued May 6, 1958, to W. E. Craig, Philadelphia, and John O. Van Hook, Roslyn, Pa., assignors to Rohm & Haas Co., Philadelphia. A method of controlling nematode infestations of soil which comprises introducing 2,2,2-trichloro-1-cyanoethyl acetate into the soil infested with nematodes.

2,833,805

Dithiophosphate Insecticide. Patent issued May 6, 1958 to William R. Dively, Newark, Del., assignor to Hercules Powder Co., Wilmington, Del. As a new composition of matter, a compound of the formula



in which R is a radical of the group consisting of lower alkoxyethyl and lower alkyl radical and R' is a lower alkyl radical, Y is a member of the group consisting of sulfur and oxygen and Z is a member of the group consisting of hydrogen and RY.

Industry Trade Marks

.The following trade marks were published in the Official Gazette of the U.S. Patent Office in compliance with section 12 (a) of the Trademark Act of 1946. Notice of opposition under section 13 may be filed within 30 days of publication in the Gazette. (See Rules 20.1 to 20.5.) As provided by Section 31 of the act, a fee of $25 must accompany each notice of opposition.

Doctor, in hand-lettered script, for insecticides, fungicides, insect repellents. Filed April 18, 1955, by Juan Llurba, Havana, Cuba, owner of Cuban Reg. No. 60,413, dated June 29, 1940.

Nitro-Form design, with large letter "N" within circle in center of design. The words "The 'Blue Chip of Urea-Form'" appear across the top, for synthetic organic water-insoluble nitrogen compound designed primarily for predetermined nitrogen release values in crop raising. Filed June 20, 1957, by Nitro-Form Agricultural Chemical Co., Woonsocket, R.I. First use, April 1, 1957.

MEM, in capital letters, for minor element mixture used as an additive in fertilizers. Filed July 18, 1957, by International Minerals & Chemical Corp., Chicago. First use June 21, 1957.

PEST CONTROL GUIDE

BERKELEY, CAL. — The division of agricultural sciences of the University of California has issued a new leaflet entitled "1958 Pest Control Guide for Cotton."

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Time Running Out For Cotton Planting

MEMPHIS—Mid-South farmers are keeping one eye on the sky and the other eye on the calendar as time runs out for planting cotton. Extension service officials in Arkansas, Tennessee, Mississippi and Missouri predicted that last week was a critical one for the area's cotton crop.

They point out that unless the rains stopped last week there will be very little chance for farmers to get their land ready and the cotton planted by May 25. June 1 is generally regarded as the last day cotton can be planted with the reasonable expectation of getting a good crop.

Some institutions in southeast Missouri are instructing their tenants not to plant cotton after May 20. They claim that cotton planted after that date is likely to be killed by frost before the plant is mature. Less than 25% of the cotton has been planted in many southeast Missouri areas, county agents say, and much of that will have to be replanted.

Replanting also was under way last week in other parts of the Mississippi Delta, most of it on higher and sandy soils. The Mississippi Extension Service reports that much of the low lands are still too wet or under water. However, between 40 and 50% of the state's corn crop has been planted.

Arkansas farmers are being hit again by the rains and little field work has been done during the past week.

In Tennessee, H. T. Short, extension service district agent, reports farmers are far behind in their work. A little cotton has been planted, he said, but predicted that much of it will have to be replanted.

Meanwhile, farmers are making plans for substitute crops in case the weather prevents cotton planting by June 1. Most of them favor corn or soybeans.

Soils Group to Meet

RALEIGH, N.C.—Topics of interest to the fertilizer industry will be up for discussion at the meeting of the Soil Science Society of North Carolina, to be held May 22-23 at North Carolina State College here. Among the speakers will be Dr. Russell Coleman, executive vice president of the National Plant Food Institute, whose topic will be "Farmers' Attitudes Toward the Use of Fertilizer."

MICHIGAN CHEMICAL EARNINGS

SAINT LOUIS, MICH.—Michigan Chemical Corp. has announced net earnings after taxes of $119,098 for the first quarter of 1958, compared with $157,961 for the similar period in 1957. Based on the 720,665 shares now outstanding, earnings a share were $0.16 in 1958 and $0.22 in 1957. Sales for the first quarter were $2,782,808 in 1958 against $2,015,497 in 1957.

PESTICIDES

(Continued from page 1)

tion of pesticides has been revised substantially, effective Jan. 1, 1958. By the establishment of several new commodity numbers more detailed statistics for U.S. exports are becoming available. Separate categories have been set up for each of the following:

DDT, technical
DDT, formulations containing 20 to 74%
DDT, formulations containing 75% or more
2,4-D and 2,4,5-T and their formulations
Organic phosphate insecticides
"Polychlor" insecticides, including DDD, methoxychlor, pentachlorophenol, and some others as well as the chlorinated hydrocarbon group (aldrin, chlordane, dieldrin, endrin, heptachlor, and toxaphene)
Fungicides
Fumigants, soil, grain and industrial

The carryover of pesticides as of Sept. 30, 1957 was about as large on the whole as on the same date a year earlier, according to the annual survey of manufacturers' inventories conducted by the U.S. Department of Agriculture in cooperation with the National Agricultural Chemicals Assn. A somewhat larger proportion on the technical basis (38.6% compared to 27.9% in 1956) was reported to be prepared mixtures or formulations. Returns from basic producers reporting in both 1956 and 1957 indicated stocks of technical goods in their possession to have been up 28% in 1957. Their inventories as of Sept. 30, 1956 totaled 97,483,000 lb.; as of Sept. 30, 1957, 124,851,000 lb.

The 1957 spring season was up to a month late in widespread localities, thus slowing the demand for pesticides. Extremely severe summer drouth prevailed in the Northeast and nearby areas. Unlike the situation in recent years, large areas of the Cotton Belt had heavy summer rainfall. For instance, many stations in Arkansas reported 80 inches.

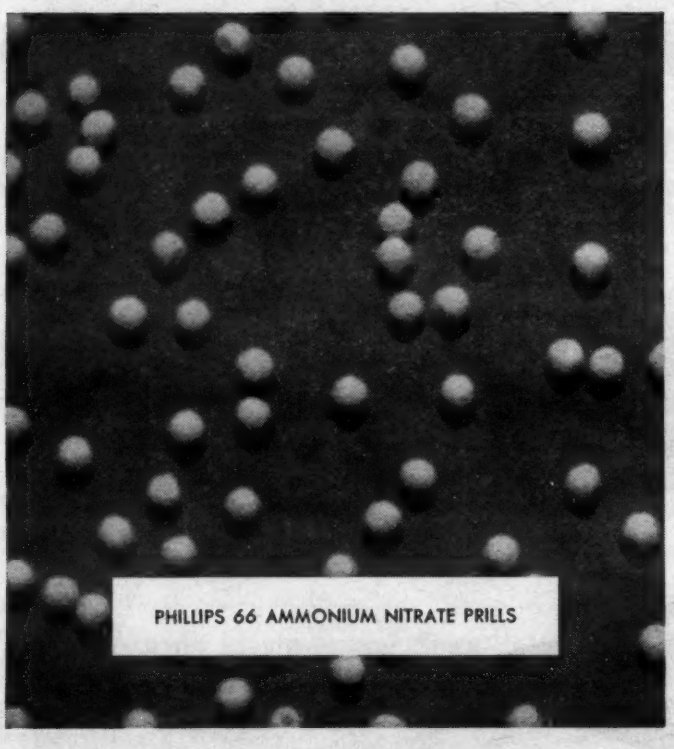
This favored the buildup of serious boll weevil infestations as well as larger-than-normal populations of cotton aphid. On the other hand grasshoppers, chinch bugs, and spider mites were significantly less numerous in cotton, possibly because of the heavy precipitation. Exceptionally heavy rains toward the end of the season plagued southern growers at harvest time.

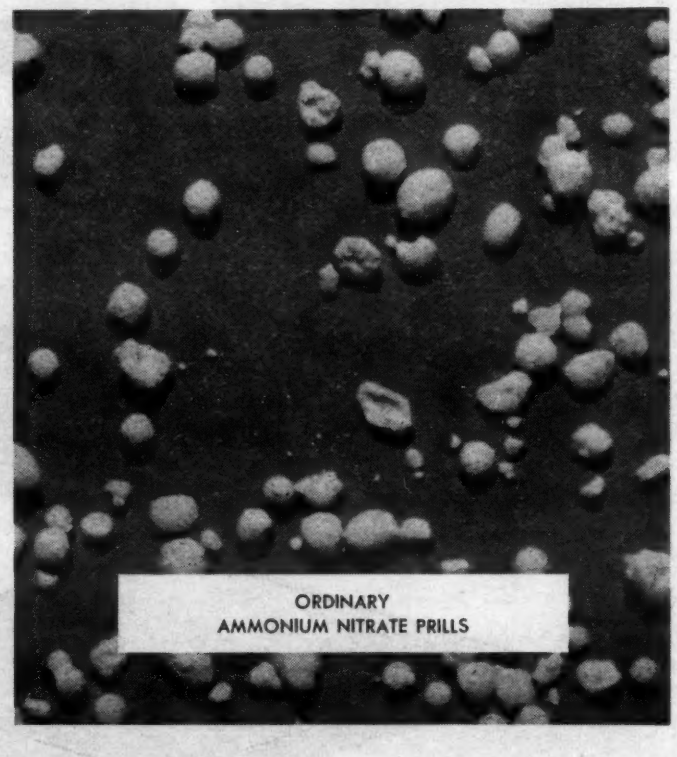
More boll weevils entered hibernation last fall than in 1956 in Tennessee, Mississippi, Louisiana and South Carolina. The proportion remaining alive to emerge and invade the new 1958 cotton crop is being determined this spring. Louisiana has found a winter survival of 18%; this is a much lower percentage than a year ago but surviving numbers are not much less in view of the heavy fall population.

Sales of cotton insecticides reported in Louisiana for the years 1955 to 1957 have been recalculated to show quantities of active ingredients involved. The volume of prepared formulations reported sold in 1957 amounted to 16,800,000 lb. dusts and 560,000 gal. spray concentrates. This was a decrease from the 24,400,000 lb. dusts sold in 1956, but a substantial increase from the 336,000 gal. sprays sold then.

Alabama reported 585,967 acres or 57% of its planted cotton acreage treated for insect control in 1957. This compares with 574,858 acres treated in 1956. The insecticides used in 1957 included 27,819,000 lb. dusts and 270,243 gal. spray concentrates. The dusts used were mostly 3-5 BHC-DDT mixture (14,133,000 lb.) and 20% toxaphene (12,075,000 lb.); 410,-

(Continued on page 17)





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Southeastern U.S.

Farmers' Attitudes Toward Fertilizer

EDITOR'S NOTE: The accompanying summary and analysis indicate that farmers in the Southeast should be using twice as much fertilizer as they are presently using. The summary and analysis were prepared by the National Plant Food Institute, Washington, from a study by National Analysts, Inc., Philadelphia, a consumer research organization.

Introduction

Fertilizer consumption in the Southeastern United States should be approximately twice as great as it is at present. Despite experiment station and extension service recommendations, farmers in this area fail by a large margin to use on their crops the quantities of plant nutrient elements known to be needed for the highest net earnings from their farm operation.

Farmers aren't using these materials in larger quantities for a number of reasons. These reasons are summarized in this report. They were learned through answers which farmers themselves gave to questions asked of them by representatives of one of the nation's leading consumer research organizations. These questions were designed to reveal the grower's attitude toward the use of commercial fertilizers, and the answers were checked and rechecked for consistency.

This report sets forth, in order shown:

What the farmer likes about fertilizer
What the farmer doesn't like about fertilizer
The farmer's knowledge of fertilizers
How the farmer reaches his decision about fertilizer use
Characteristics of the Southeastern farmer
How the survey was conducted

What He Likes

What makes a good farmer? Farmers were asked to think of someone in their area whom they considered to be a really outstanding farmer. They were then asked to give their opinion as to which of the following practices contributed most toward making him a good farmer. Their answers, in the order of their relative importance, were:

Reason	Rating
Use of more fertilizer per acre	38
More fertile land to begin with	28
Use of more machinery	28
Harder work and longer hours	24
Greater attention to soil erosion problems	21
Cultivation of more land	20
Use of better seed	17
Use of better crop rotation methods	16
Better yield per acre	9

Ninety percent of all Southeastern farmers indicated the use of some kind of fertilizer on their two most important crops. Of all growers using some kind of fertilizer, 94% were using commercial fertilizer on their two most important crops.

Farmers questioned in the survey were classified according to their use of fertilizer. After the interviews were completed, each farmer in the sample was classified as to level of fertilizer use by a group of agronomists who were well acquainted with local farming conditions. Classifications of levels of use were:

High—Farmer generally using fertilizer at rates close to recommended level.

Medium—Farmer using fairly good level, but well below college recommendations.

Low—Farmer using some fertilizer but an amount very inadequate for his type of crops and soils.

None—Farmer used no commercial fertilizer on either of his two most important crops during 1956. (Does not necessarily mean he used no fertilizer on his farm.)

The percent of farmers falling into each class is as follows:

Classification	Percent
High	33
Medium	39
Low	21
None	7

What do farmers like about commercial fertilizer? They gave a host of answers, but the answer given least of all was that there was a profit from using these materials.

Farmers are generally pleased with the results of commercial fertilizers. Eighty one percent of those questioned indicated moderate to extreme satisfaction with the results that they had obtained. When asked why, 89% indicated they were satisfied because of increased yields. Again no mention was made of the effect that the fertilizer had on increasing the net farm income.

Those farmers who did not use commercial fertilizer were asked what effect they thought that the addition of 500 lb. per acre of a fertilizer would have on their crop. Fifty percent said that it would increase crop yields. The fact that many nonusers generally think fertilizer would have a good or provisional effect should make them good potential customers.

A change in fertilizer use was planned for the next year. Thirty seven percent of all farmers questioned indicated they were going to change their fertilizer practices for the coming year. Thirty nine percent of these planned to use more fertilizer or a fertilizer of a higher grade. Only 11% planned to decrease their fertilizer use. If their response in 1956 is indicative of their changing attitude, then this fluid group should be responsive to sales programs.

Fertilization of pastures and hay crops is generally thought to be a good practice. When asked if they thought the fertilization of forage crops was a good idea, 85% said that it was. However, only a small percentage of southeastern farmers actually do fertilize these crops.

Farmers felt that fertilizing pastures and hay crops was a good idea for a number of reasons, but only about 1% to 2% indicated that increasing the net farm income was one of these reasons.

Pastures and hay crops constituted the most important crops in the Southeast in 24% of the cases interviewed. In only 70% of the cases, however, was it indicated that these crops received any commercial fertilizer. Pasture and hay crops should, and probably will, increase in the Southeast. In this feed deficient area, which, incidentally, is ideally adapted for forage crop production, such crops, when adequately fertilized, offer an ideal substitute for cotton. By encouraging the development of this type of agriculture, the industry could create the market it needs to offset the decrease in cotton acreage.

What He Dislikes

Farmers think well of fertilizer, but why do they not use it to a greater extent? By their own admission, those who didn't use commercial fertilizers (7% of total) said that they failed to do so because:

It was not essential to crop production.
They didn't have enough money.
They preferred organic material.

Fifty three percent of all persons interviewed preferred animal manure to commercial fertilizers, other factors being equal. Some of the reasons given for this preference are sound. The point that should be seized upon by educational agencies and by industry, however, is that commercial fertilizer produces the same effect as manure when used in adequate quantities and in conjunction with other sound management practices. This unconscious adherence to the outmoded humus theory on the part of many farmers is effectively blocking the efficient agriculture which would result from the intelligent use of commercial fertilizer.

Other drawbacks to the use of commercial fertilizer were listed as:

Costs too much.
Difficult to apply.
Requires moisture.
Harmful to soil.

Even farmers who used commercial fertilizers occasionally have some reservations about it. When asked what effect would be of doubling their rate of application, about one third thought the effects would be good. However, in terms of bad effects, they gave the following answers:

Reason	Percent
Wasted money	17
Burn out crop	12
Other harmful effects	6
Costs too much	3
Harmful to soil	3

Thirty seven percent of the farmers felt that the effectiveness of fertilizer is dependent upon the weather. Available data indicate that in many cases adequate fertilization can offset some of the ill effects of drouth.

Through education and an effective sales program, some of the fears expressed above can be overcome and the use of fertilizer by this group may be increased.

The farmers' knowledge about soil

(Turn to ATTITUDES, page 16)

SHOP TALK

OVER THE COUNTER

By Emmet J. Hoffman
Croplife Marketing Editor

Elsewhere on this page is another in a series of articles prepared by the National Plant Food Institute concerning farmers' attitudes toward the use of fertilizer. The articles were written with the interests of different crop regions in mind, this issue carrying the Southeastern U.S. summary. The Midwest and Western summaries will follow in subsequent issues. Findings are based on an extensive survey conducted by an independent research firm.

The results of the study have indicated a number of factors which are associated with the farmers' use of fertilizer. Consideration of these factors, together with other background information, has led to the suggestions below which, if translated into action, could increase and improve the use of fertilizer in the Southeast.

The actions suggested by NPFI are varied but commendable. If every segment of the fertilizer industry—of which dealers are an important one—followed through on the suggested actions below much progress could be achieved. The suggested actions:

1. To increase acceptance and use of soil tests by farmers and the fertilizer industry.

2. To encourage simplified fertilizer recommendations and soil test administrative procedures through a continuing review of these items with soil testing personnel.

3. To improve and expand demonstration activities, particularly with feed and forage crops, and to publicize these demonstrations in every way possible.

4. To emphasize the dollar-and-cents importance of adequate fertilizer use by increasing the collection and distribution of information on fertilizer economics.

5. To intensify cooperative activities with credit agencies, to acquaint them with the importance of adequate fertilizer use in a profitable farming operation, and to develop with these agencies loan application forms requiring information on proposed fertilizer and liming practices.

6. To increase the farmer's awareness of his need for and basic understanding of an adequate fertilizer program (a) by increasing direct-contact educational programs and (b) through increased use of mass media.

7. To increase the clarity and eye appeal of fertilizer publications to ensure their wider use.

8. To develop with land-grant colleges research projects that will provide results of fertilizer studies in terms of dollars and cents.

9. To give limited support to research in plant nutrition and soil science which may lead to the increased and more intelligent use of fertilizer.

10. To develop promotional materials describing alternative profitable farming enterprises (such as livestock and forage) and the required management practices to help the Southeastern farmer meet the crisis of shrinking row crop acreage and related loss of income.

11. To promote a greater degree of cooperation between the fertilizer industry and public agricultural workers.

What's New...

In Products, Services, Literature

You will find it simple to obtain additional information about the new products, new services and new literature described in this department. Here's all you have to do: (1) Clip out the entire coupon and return address card in the lower outside corner of this page. (2) Circle the number of the item on which you desire more information. Fill in your name, your company's name and your address. (3) Fold the clip-out over double, with the return address portion on the outside. (4) Fasten the two edges together with a staple, cellophane tape or glue, whichever is handiest. (5) Drop in any mail box. That's all you do. We'll pay the postage. You can, of course, use your own envelope or paste the coupon on the back of a government postcard if you prefer.

No. 6005—Fork Lift Truck

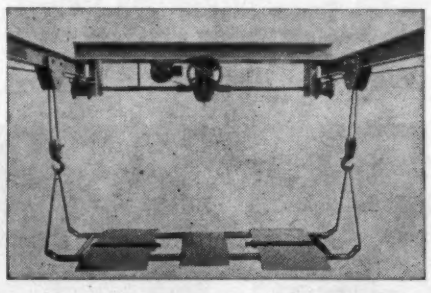
High stacking ability, plus easy access to low headroom areas, are claimed for the model 460 "Towmotor" fork lift truck equipped with "Triple Lift Mast." The manufacturer, Towmotor Corp., states that "Mast's" over-all lowered height of 71 in. permits safe entry into rail cars and low-ceilinged storage areas. The maximum lift is 144 in. Check No. 6005 on the coupon and mail it to secure details.

No. 6742—Irrigation Guide

An irrigation performance guide slide rule has been prepared by the Buckner Manufacturing Co., Inc. The guide relates such factors as spacing of sprinklers, precipitation rate, total gallons per minute, number of sprinklers, nozzle size, pressure psi, pipe length and pressure drops. Instructions for use are printed on the guide. Check No. 6742 on the coupon and mail it to Croplife to secure details.

No. 6014—Truck Hoist

The Triumph Division of the C. O. Bartlett & Snow Co. has added a



heavy-duty truck hoist to its line. The hoist is available in three standard sizes having gross vehicle weight inclined dumping capacities of 15,000 lb., 25,000 lb. and 37,500 lb., respectively. The hoisting mechanism is stationary. The design leaves the center area of the driveway clear so the cab of a truck can be lifted up between the I-beams if necessary. The hoist's motor is totally enclosed. Check No. 6014 on the coupon and mail it to secure details. Please print or type name and address.

No. 6740—"Nurse Tank" Transport

General Metals, Inc., is now in production on a new trailer-mounted 1,000-gal. "Nurse Tank" transport. The transport is designed for hauling nitrogen solutions and liquid fertilizers from storage tanks to the farm and out to the field. It serves as a source of supply for trailer or tractor applicator units and is used in putting the solutions on the field. The unit is especially designed for nitrogen solutions, and may also be used for transporting insecticides, weed killers and other liquid products. The transport can be backed as easily as any farm trailer and can be turned as short as any car, it is claimed. The transport unit consists of trailer, saddles, tank, fittings, hose, gauges, air compressor, front end jack, trailer hitch and all necessary equipment. Check No. 6740 on the coupon and mail it to secure details. Please print or type name and address.

No. 6015—Pick-Up Lift

The "Express-O-Lift," a hydraulically operated pick-up lift gate designed specifically for ½- and ¾-ton pick-up trucks with express-type bodies is a new addition to the lift gate line manufactured by the An-

thony Co. The unit will raise or lower loads up to 800 lb. from a truck, it is claimed. The unit can be bolted to the truck body in place of the tail gate. A small electric motor drives the hydraulic mechanism. Check No. 6015 on the coupon and mail it to secure details. Please print or type name and address.

No. 6728—Apple Insect Control

Acceptance of a "Crag Sevin" experimental label for control of apple insects has been granted by the U.S. Department of Agriculture, it was announced by Crag Agricultural Chemicals Department, Union Carbide Chemicals Co., Division of Union Carbide Corp. The product will be available only in limited quantities this year. The new label recommends use of "Sevin" 50% wettable powder at the rate of one or 2 lb. per 100 gal. of dilute spray. Check No. 6728 on the coupon and mail it to secure details. Please print or type name and address.

No. 6734—Mulch-Laying Machine

A new machine for laying black polyethylene film for mulching purposes has been announced by the Bakelite Co., Division of Union Carbide Corp. The machine lays film at a speed of about one acre per hour. In a 1957 experiment with cantaloupes, film cost was $160 per acre and melon yields were increased nearly three times compared with the check plot. The mulch is laid prior to planting. Existing farm implements may be utilized in rigging up the machine. Secure details by checking No. 6734 on the coupon and mailing it to Croplife. Please print or type name and address.

No. 6727—Trailer Applicator

General Metals, Inc., has developed a new trailer applicator, the model TPD-200, for top-dressing of nitrogen solutions or complete liquid fertilizers. The unit is said to be ideal for fertilizing pastures, small grain and row crops, and up to 200 acres may be fertilized in one day. A choice of 235-gal. pressure or 210-gal. non-pressure tank of aluminum, steel or stainless steel is provided. The standard 21-ft. boom is made in three sections. There are 24 nozzles. Literature may be secured by checking No. 6727 on the coupon and mailing it to Croplife. Please print or type name and address.

No. 6731—Liquid Container Closure

The Rieke Metal Products Corp. announces its new "self-venting Flex-Spout" closure for liquid shipments. The unit incorporates an internal vent feature that obviates the necessity for other separate vents or closures on steel or fiber shipping containers. The closure is a completely assembled unit that requires no positioning or registration when affixed to the container. The spout is of polyethylene, it can be extended or recessed and is claimed to eliminate the "glug" in pouring. Check No. 6731 on the coupon and mail it to Croplife to secure details. Please print or type name and address.

No. 6739—Advertising Mats

Advertising mats made up for dealers who want to advertise in their local newspapers certain farm and orchard chemicals manufactured by the U.S. Rubber Company, Naugatuck Chemical Division, have been prepared. Information about the mats may be obtained by checking No. 6739 on the coupon and mailing it to Croplife.

No. 6738—Seed Treatment Data

A comprehensive 54-page book which describes the properties and uses of seed treating compounds has been published by Corn States Hybrid Service. It contains a compilation of article reprints which detail the results of experiment station studies of seed treatments conducted throughout the country. The treated

(Turn to WHAT'S NEW, page 14)

Also Available

The following items have appeared in the What's New section of recent issues of Croplife. They are reprinted to help keep retail dealers on the regional circulation plan informed of new industry products, literature and services.

No. 6729—Plant Tranquilizer

A chemical tranquilizer for plants has been developed by United States Rubber Co. It will be marketed for use on selected crops for the first time this season. Called by the trade name, "Duraset-20W," the product is said to increase plant yields by reducing the effects of shock and stress caused by such conditions as heat spells and sudden cold snaps. Successful field tests have been performed by using the product on tomatoes, cotton, cherry trees, alfalfa, soybeans and other fruits and vegetables. Check No. 6729 on the coupon and mail it to secure details.

Send me information on the items marked:

- ☐ No. 6005—Fork-Lift Truck
- ☐ No. 6011—Boom Truck
- ☐ No. 6014—Truck Hoist
- ☐ No. 6015—Pick-Up Lift
- ☐ No. 6016—Bulk System
- ☐ No. 6719—Weed Guide
- ☐ No. 6723—Pamphlets
- ☐ No. 6724—Tanks
- ☐ No. 6725—Loader
- ☐ No. 6727—Applicator
- ☐ No. 6728—Apple Insects
- ☐ No. 6729—Plant Tranquilizer
- ☐ No. 6730—Ingredients
- ☐ No. 6731—Container Closure
- ☐ No. 6734—Mulch-Layer
- ☐ No. 6735—Brochure
- ☐ No. 6737—Leaflet
- ☐ No. 6738—Seed Treatment
- ☐ No. 6739—Ad Mats
- ☐ No. 6740—"Nurse" Tank
- ☐ No. 6742—Irrigation Guide

(PLEASE PRINT OR TYPE)

NAME .....

COMPANY .....

ADDRESS .....

CLIP OUT—FOLD OVER ON THIS LINE—FASTEN (STAPLE, TAPE, GLUE)—MAIL

FIRST CLASS
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MINNEAPOLIS, MINN.

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No postage stamp necessary if mailed in the United States

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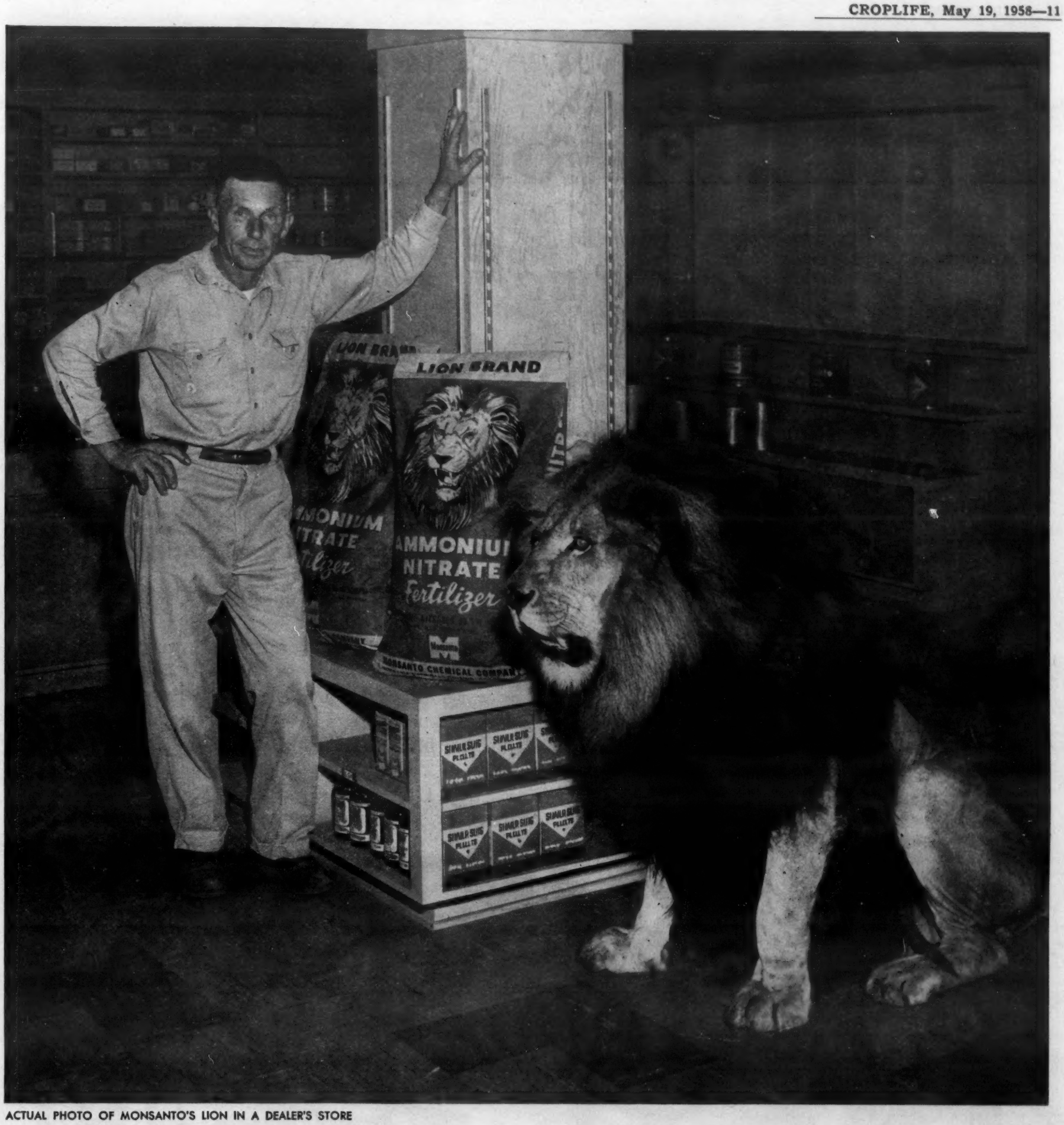


ACTUAL PHOTO OF MONSANTO'S LION IN A DEALER'S STORE

To make more money – put LION in your store

LION BRAND AMMONIUM NITRATE advertising and field promotion help you sell more by getting across to your customers these facts:

- Lion brand is *guaranteed* to contain 33.5% nitrogen.
- Lion brand contains both of two important kinds of nitrogen: quick-acting nitrate nitrogen that gets plants started fast . . . and *long-lasting* ammonia nitrogen that resists leaching, feeds crops steadily for months.
- Lion brand is prilled . . . coated pellets of uniform size for easier spreading.
- Lion brand is *guaranteed* to flow freely not for just a year, but *until used*, when stored properly.
- Lion brand is now in a new green and yellow bag constructed to give greater protection.

MONSANTO'S PROMOTION AND ADVERTISING increase your sales and profits with:

- Advertising campaigns promoting mixed fertilizer as well as Lion brand in leading farm publications read by your customers.
- Local farm radio, billboards and local newspaper advertising support.
- Literature on crops grown in your area, including mixed fertilizer recommendations.
- Fertilization wall charts for your area.
- Soil test sample bags, memo books, decals, book matches, product samples, banners, folders and many other promotional items.

This year LION brand is better than ever . . . more uniform in size . . . can't cake when bags are stored properly.

* * *

Monsanto

World's largest producer of prilled Ammonium Nitrate

MONSANTO CHEMICAL COMPANY • INORGANIC CHEMICALS DIVISION • ST. LOUIS 24, MISSOURI

Portals of progress

— *for the benefit of agriculture*

Modesto Agricultural Laboratory, Modesto, California

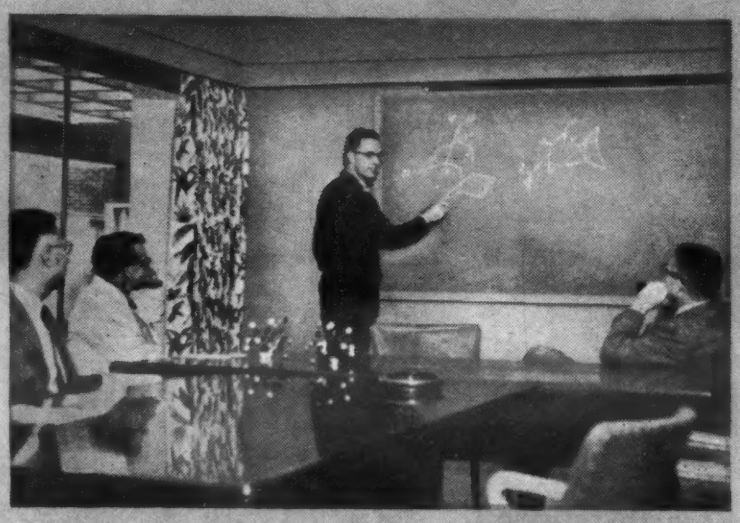
The doors of Shell Development Company's completely modernized and expanded facilities at Modesto, California, officially opened April 17, 1958. This new installation is dedicated to the intensive study of pesticides—not only for agriculture, but also for pests that harass the general public in homes, gardens, recreation areas and in industry.

The Modesto Agricultural Laboratory ranks among the foremost installations of its type in the world. Its organizational make-up is comprised of four groups: Biological Research; Chemical Research; Service; and Products Application. All four groups are co-ordinated under one Director.

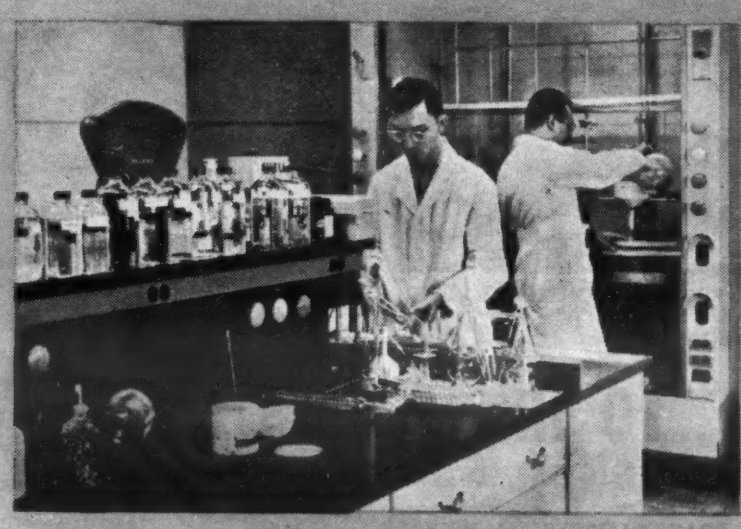
The facilities include modern, well-equipped laboratories, an up-to-date reference library, five spacious greenhouses and a 142-acre experimental farm. After preliminary laboratory study is completed, Shell researchers can then conduct field tests and further experiments to prove new products under authentic farming conditions.

Shell pesticides now in successful use in every agricultural area include aldrin, dieldrin, endrin, methyl parathion and Phosdrin® Insecticides; allyl alcohol weed seed killer; D-D® and Nemagon® Soil Fumigants. The new additions to the Modesto Agricultural Laboratory promise the continued development of new, easier-to-use and more effective weapons for the continuing battle against crop-destroying pests.

Shell Chemical Corporation looks to a brighter tomorrow for agriculture through chemical research today.



This modern conference room adjoins Director's office. Here department heads attend regular meetings. They work as a team to discuss and resolve field and laboratory research problems.

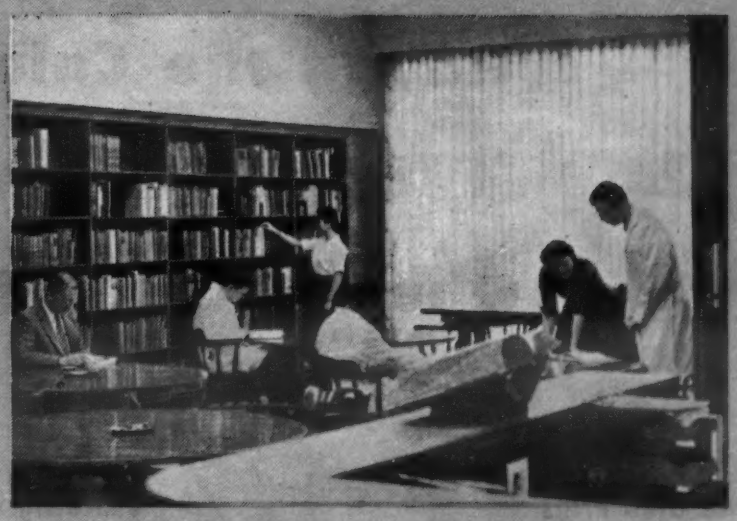


Laboratories contain the most modern, scientific equipment available. When preliminary tests are completed, researchers can then move out to the 142-acre farm for further proving under actual farming conditions.

For technical information on Shell Chemical products, write to:

in pesticide research

One of five spacious greenhouses. Horticulturists, shown here working with a test spray, are conducting an experiment with root rot on pinto beans in naturally infested and diseased soil.



Personnel have at their disposal this modern library and information center. Extensive files contain books and technical material on chemistry, biology, agricultural chemistry and many other related subjects.

SHELL CHEMICAL CORPORATION

AGRICULTURAL CHEMICAL SALES DIVISION

460 Park Avenue, New York 22, New York

SHELL

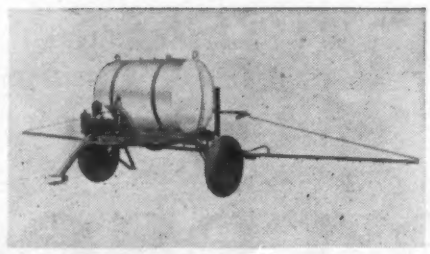
WHAT'S NEW

(Continued from page 10)

seeds were tested in cold test chambers, greenhouses, seed fields and on farms. Also included in the publication are descriptions of the various formulations now available and the treatments recommended for control of fungi, smuts, seed decay and seedling blight. Specimen labels for each formulation are bound into the book. Secure the book by checking No. 6738 on the coupon and mailing it to Croplife. Please print or type name and address.

No. 6724—Rubber-Lined Tanks

The Gates Rubber Co. has prepared a new folder describing its "50-H rubber-lined tanks" and listing tank specifications for both pressure and non-pressure fertilizer chemicals. The



literature states that Gates tanks "give permanent corrosion protection for all fertilizer solutions." The tanks have a 3/16-in. rubber lining "welded" to the steel surface, states the folder. Check No. 6724 on the coupon and mail it to secure details. Please print or type name and address.

No. 6735—Insecticide-Fertilizer Brochure

A colorful, 8-page brochure has been published by the Velsicol Chemical Corp. to describe methods of applying fertilizer mixed with Heptachlor insecticide. Broadcasting, banding in the row, side dressing, liquid application, double banding, and drilling with seed are discussed. Action photos and two-color drawings accompany the text. The brochure is educational in nature and can be used as an aid to farmers and in classroom work. A copy of the brochure may be obtained by checking No. 6735 on the coupon and mailing it to Croplife. Please print or type name and address.

No. 6719—Weed Control Guide

"Chemical Weed Control Guide," an annual publication, has been prepared for 1958 by the Soil Building Division, Cooperative G.L.F. Exchange, Inc. The 76-page guide lists weed control information for the dairyman, vegetable grower, fruit grower, diversified farmer and instructions in the use of weed killers and equipment. Check No. 6719 on the coupon and mail it to Croplife. Please print name and address.

No. 6723—Fertilizer, Lime Pamphlets

Three pamphlets designed to help farmers realize higher yields per acre are available free from Monsanto Chemical Company's Inorganic Chemicals Division. Two of the pamphlets are devoted to the correct fertilization of corn and cotton, respectively; the third points out the advantages of applying lime to fields in order to increase crop yields and help fertilizers do their most efficient work. Check No. 6723 on the coupon and mail it to Croplife to secure details. Please print or type name and address.

No. 6725—Front-End Loader

The Frank G. Hough Co. has announced production of an entirely new "Payloader" model, the H-25. It is a rubber-tired front-end loader with rated carrying capacity of 2,500 lb. It can be operated out of boxcars having 6-ft. doors. Company officials say that is has a different frame,

wheels, axles, transmission, torque-converter, styling, bucket design, electrical system, hydraulics, brakes, engine, differential, etc., than other "Payloader" models. The unit has a 12-volt electrical system. Check No. 6725 on the coupon to secure details. Please print or type name and address.

No. 6737—Range Fertilization Leaflet

A leaflet entitled "A Report to California Ranchers" presents case histories of California range demonstrations. The report was prepared by Balfour, Guthrie & Co., Ltd. and describes field operations carried out by the company, individual ranchers, soil conservation districts and California State Polytechnic College. Results showed a $16.99 average increase in profit per acre, the leaflet states. Check No. 6737 on the coupon and mail it to secure the leaflet.

No. 6011—Boom Truck

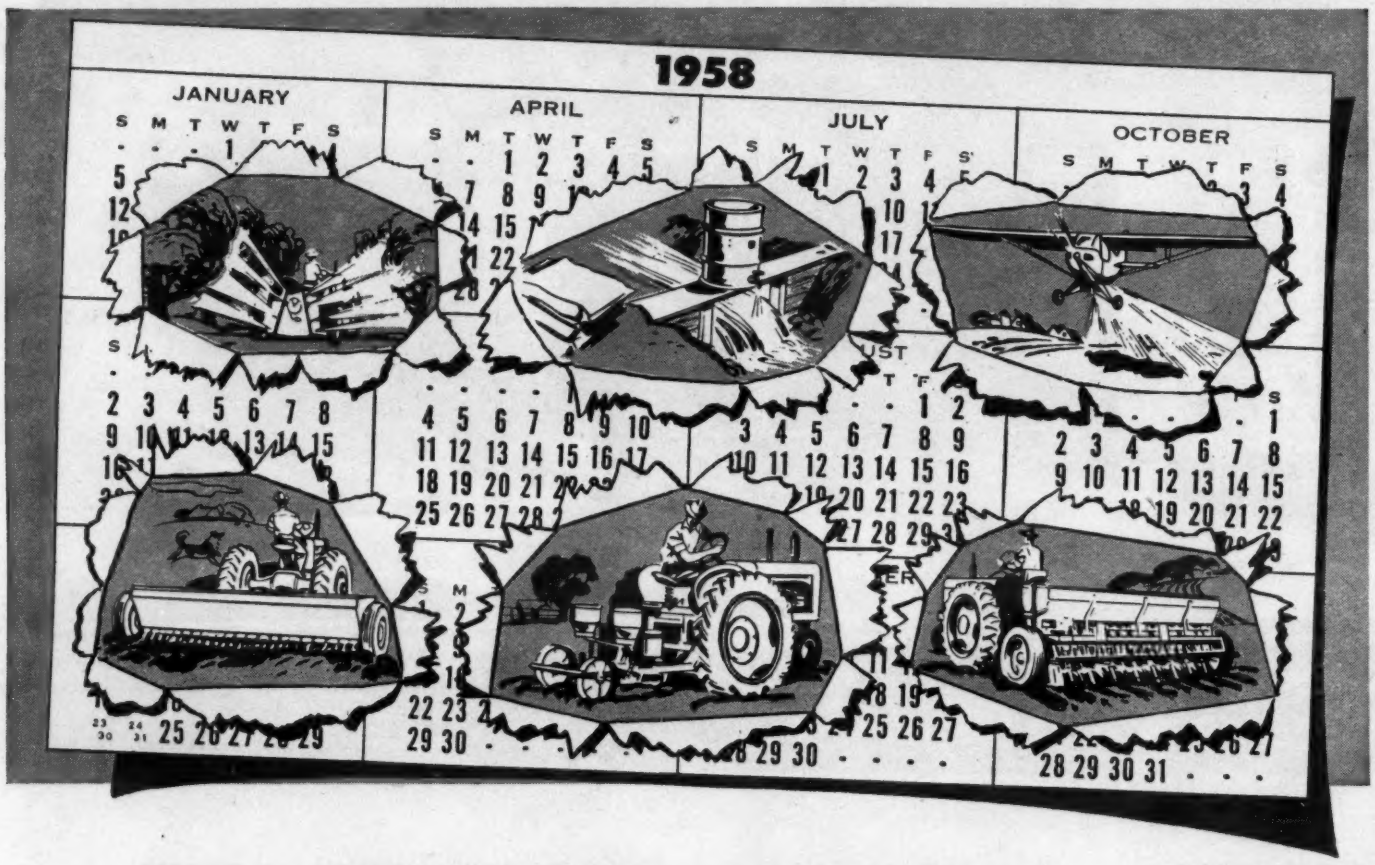
Details of a new type of boom truck, the "Hydro-Boom," have been announced by the Vanguard Engineering Co. The boom moves in all directions and is available in hand-operated or battery-operated models with or without power propulsion. Check No. 6011 on the coupon and mail it to secure details. Please print or type name and address.

No. 6730—Herbicide Ingredient

Volume production of methylacetylene-propadiene, a chemical intermediate, has been started by the Dow Chemical Co. Fields in which the chemical may find use include agricultural herbicides. Check No. 6730 on the coupon and mail it to secure details. Please print or type name and address.

No. 6016—Bulk System

"Kaiser Nest-A-Bin"—a product of the Kaiser Aircraft & Electronics Division of Kaiser Industries Corp., is described as a bulk handling and storage system for liquids and granulars in the feed, grain and other industries. The bins have a storage capacity of 77 cu. ft. Eight empty bins can be nested in the same cubic space occupied by one full bin. Secure details by checking No. 6016 on the coupon and mailing it to this publication. Please print or type name and address.



'Round the Calendar

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2 Grace Fertilizers

✓ **Grace Urea Prills**

When your customers require nitrogen in the solid form, you'll find it sound (and profitable) business to recommend Grace Urea Prills, *guaranteed 45% nitrogen*. This is a special free-flowing form of urea with *definitely superior* anti-leaching qualities—ideal whenever a solid nitrogen is preferred.

✓ **Grace Agricultural Grade Crystal Urea**

And Grace Agricultural Grade Crystal Urea is the *right* recommendation for foliar spraying, because this urea is *specially formulated* for foliar application. Its low biuret content (less than 0.2%) makes it safe; it is completely water soluble, won't clog spray equipment; and it is 46% nitrogen.

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Doing Business With

Oscar & Pat

By AL P. NELSON
Croplife Special Writer

"Oh, Dad, you don't seem to have so many customers this morning. Can I go play baseball for a while with my pals?"

Ralph Culpepper, the tall, neatly-dressed hardware dealer, looked at his ten-year-old son and smiled. With Tom were four other boys. They carried gloves, bats and balls. Eager, hopeful eyes looked at the hardware dealer.

"Well, I've got one little job for you to do, and then you can go play ball for an hour or so," the father said. "Pat McGillicuddy has ordered four red wheelbarrows and he wants them right away. Our truck is out delivering in the country, and Pat's trucks are out with fertilizer. How about you boys wheeling those wheelbarrows over to Pat's up the back alley? It's only two blocks."

"Okay," grinned Tom through his freckles. "Come on, boys, let's get goin'."

The wheelbarrows were lined up in the alley. The fifth boy, a youngster who was quite fat, wailed. "I ain't got no wheelbarrow."

"Aw, quit yer bellachin', Fatty," said another. "I'll let you wheel mine, the last half block."

Tom Culpepper turned to his pals. "Okay, men," he said. "Let's make a march outa this. I'll lead and we'll all go up the alley whistlin' our club song 'Bridge of the River Kwai.' One . . . two . . . three—here we go."

Up the alley the five boys went, each proudly handling a wheelbarrow, except Fatty who looked lost in the parade, and each boy whistling merrily.

Ralph Culpepper looked fondly after them. "Gosh, what a wonderful time of life for them. No worries . . . everything fun and adventure . . . I've gotta take off two weeks and go fishing with Tom on vacation this year . . . I want to feel like he does. I did once . . ."

Oscar Schoenfeld frowned at his desk as he heard a lot of shrill, half melodious whistling outside in the parking area. Tillie Mason, plump and ulcerish, got up from her desk and moved to the window.

"Oh, Oscar, come look at the cute boys," she said. "They're marching as they wheel some barrows. And they're comin' here."

"Ach, what foolishness!" Oscar cried. "They are botherin' me. I will tell them to get out of here with their monkey-shines and go bother somebody else."

He got outside just as the parade came to a halt. Tom Culpepper saluted smartly, his mouth in a friendly smile. "Good mornin', sir! We have brought you the four wheelbarrows you ordered. Now we'll take out our baseball togs and go and play."

"Wheelbarrows!" thundered Oscar. "We didn't order any! What is this foolishness?"

The small boys looked dismayed, but Tom spoke up firmly. "My dad told me to bring them here. He said Mr. McGillicuddy wanted them right away. Our truck is out deliverin' and he said your trucks are busy, too. So we wheeled the things over here."

"That Irisher!" Oscar thundered. "Is he going out of his mindt? Always he's buying something. Our shelves are chockfull now. Everyday I have to kick salesmen oudt of this place and still they keep comin'. I don't want those wheelbarrows. Take them back."

"Goody!" yelled Fatty. "Then I'll get a chance to wheel one all the way to the hardware store."

"No, wait!" said Tom Culpepper. "Are you sure you don't want these wheelbarrows, Mr. Schoenfeld? Isn't Mr. McGillicuddy around here?"

"No, he is oudt somewhere chasing aroundt," Oscar snapped. "All the time I have to keep sending back schtuff he ordered. He can never say no to a salesman. What do we want with your wheelbarrows? We sell feeds and farm supplies, and those crazy organics schtuffs. We are not going to take on wheelbarrows, too!"

"Gosh," said Tom, "I really don't know what to do. I'm afraid my dad will get mad if I bring these wheelbarrows back. He said I should be sure to get them over here right away. Oh—there's Mr. McGillicuddy now. Come on, boys, let's give him a show."

Quickly the boys grabbed the wheelbarrows. Then, whistling the "Bridge on the River Kwai" they marched around in a circle, heads high, lips pursed, eyes sparkling.

"Begorra, that's quite a sight," said Pat in a pleased tone. "Don't you think so, Oscar?"

"No, I don't!" Oscar said bluntly. "I toldt them to take the wheelbarrows back to the hardware store. We don't want them."

"But we do." A cold glint came into Pat's eyes.

"What for?" Oscar shouted. "We got too much schtuff in the store now!"

"The wheelbarrows are going to help us sell some of it," Pat said quietly.

"Ach, how you talk—foolish!"

Pat gritted his teeth. "I visited a garden supply store in the county seat the other day when I called on a farmer near there, Oscar. They had a wheelbarrow in an aisle. It was filled with two bags of fertilizer, a sprayer, some rose bushes, packaged seeds and lawn seed, a spade, a shovel and cans of insecticide. It was quite a sight."

"Ach, those chain stores are full of crazy ideas, too," Oscar snapped.

"I thought we could put one such

(Turn to OSCAR & PAT, page 16)

DUVAL

Drilling blast holes with a multiple mounted drill in the Duval mines near Carlsbad, New Mexico. One of the many processes which bring you . . .

High Grade Muriate of Potash . . .

HIGH ANALYSIS • DEPENDABLE SUPPLY • UNSURPASSED SERVICE

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ATTITUDES TOWARD FERTILIZER

(Continued from page 9)

fertility and fertilizers is somewhat restricted. When asked what elements were needed on their soils for good crop production, 15% of all farmers questioned indicated they didn't know. The remainder gave answers which included various combinations of nitrogen, phosphate and potash.

What He Knows

Many farmers cannot translate plant nutrient deficiencies into the need for specific fertilizer grades or ratios. Growers were asked which of several mixed fertilizers would be recommended for a neighbor if the soil test showed that:

a. the greatest deficiency were potash, and

b. the greatest deficiency were nitrogen.

Sixty percent missed the answer to one or both questions. This is perhaps one of the most significant findings of this study. By increasing the farmer's understanding of fertilizer use in relation to the fertility level of his land, he stands to increase his net income and increased net farm income is traditionally associated with increased fertilizer use.

Farmers are better informed about the relation of fertilizer grade to the cost per ton. They were asked which was the better buy—a 3-12-12 at $50 per ton or a 3-24-24 at $80 per ton. Seventy one percent indicated that the latter was the better buy, 16% didn't know, while 13% gave the wrong answer. When asked why they chose a 3-24-24, a number gave answers suggestive of an incomplete understanding as to why this grade was chosen.

How He Decides

Farmers get their information about fertilizer from numerous sources. But soil testing stands out as a much more important factor than has previously been recognized. Those who indicated some knowledge about the needs of their soil (85%) were asked how they got this information. They replied as follows:

Source	Percent
Results of soil test	45
Own experience and knowledge	38
Demonstration plots	12
County agents and other specialists	6
Other farmers	4
Reading	4

Soil testing ranked high as a guide to fertilizer purchases. Fifty seven percent of all persons using commercial fertilizer on their most important crops had their soil tested at some time, but 72% of those classed as high-level users had had a soil test. Asked why no soil test had been made, 43% of those using commercial fertilizer said that it was the result of their own negligence.

Soil test recommendations are followed. Asked how a soil test affected their use of fertilizer, a surprising 76% indicated that they had followed the recommendations completely or in part, at least. Only 13% indicated that they did not follow the fertilizer suggestions outlined on the soil test report. Ninety-five percent of the high-level users indicated that they had followed the soil test recommendations completely or in part.

Thirty five percent of the growers who did not use commercial fertilizer had a soil test, and 80% of this group indicated that they did not follow recommendations at all.

The degree of association between level of fertilizer consumption and the use of a soil test suggests strongly that here is a tool which, if properly used, could increase fertilizer consumption by that large group (67%) classed as medium or lower.

Farmers generally rank their own knowledge and experience high as a source of information about soil fertility and fertilizers.

But farmers tend to discuss their fertilizer problems with other people. Forty six percent of all persons using fertilizer on their selected crops had discussed their fertilizer needs with someone, while 47% of those not using these materials reported some discussion.

Fertilizer dealers and county agents are the persons most often consulted. The persons with whom the farmer discussed his fertilizer needs are as follows:

Source	Percent
Local dealer	30
County agent	24
Relatives	13
Soil conservation worker	12
Neighbors	11
Others	10

Seventy five percent of the users and 67% of the nonusers claimed that these discussions were helpful and that they led to specific action. Only 15% of the users and 33% of the nonusers felt that these discussions were of no value.

But farmers believed that the most practical information is that which they get from their county agents. They were asked which of several sources they considered to be the most practical in terms of good fertilizer information. These sources, listed below in the order of their relative importance, are as follows:

Source	Rating
County agent	70
Agricultural college publications	32
Local dealer	26
Neighbors	22
Local farm magazines	21
National farm magazines	18
Manufacturer's salesman	5

Reading is an important source of information on fertilizer. About 57% of southeastern farmers said that they had read about fertilizer use. About 81% indicated that they got this information from local and national farm magazines. Seventeen percent also listed government and extension service publications as a source of information. Only 26% of the users considered the information that they got by reading to be of no value, while 50% of the nonusers placed such information in this category.

Radio and TV may also be a source of information. About 18% of all southeastern farmers indicated that they had heard or seen something about fertilizer use on radio or TV. Of those who reported hearing or seeing something on either of these two media, about 45% reported that it had no effect or was not helpful to them. It may well be, however, that these two media serve as a means of creating awareness in that group of farmers which indicated that they relied on their knowledge and experience for their information.

Demonstration plots may also be an important source of information. When asked what effect they thought that seeing demonstration plots had on other farmers, 70% indicated that they thought it would have a good or positive effect. But when asked if they, themselves. had actually visited such plots, only 24% so indicated.

Those who had actually visited demonstration plots had done so because: They had read or heard about them. They had followed the suggestion of an agricultural expert. They had visited one in an agricultural course. Matter of chance.

But not one farmer indicated a visit to a demonstration plot because of the suggestions of a fertilizer dealer or salesman.

Farmers generally felt that demonstrations were more convincing when they were put out on poor land and in plots of 10 to 15 acres in size. They also believe that the demonstrations would be more convincing if held on the farms of less successful growers.

Lack of money was one of the most frequently listed reasons for not purchasing commercial fertilizer. When asked if they would negotiate a loan for the purchase of fertilizers at reasonable rates of interest, 77% said that they certainly or probably would. They said this because they felt that it was a sound investment and that a sound farming operation would not be possible without the use of fertilizer. Those who stated that they would not borrow under any conditions felt that the returns did not justify the risk and that they just didn't believe in borrowing.

In answer to the question, "If you had plenty of cash available, how much commercial fertilizer would you use?," farmers indicated that on the average they would increase their fertilization rates by about 30 percent.

His Background

And about the farmer himself:

Eighty percent were 40 years of age or older.

Sixty-five percent have been operating their farms for 20 years or more.

Sixty percent had received no more than a grade school education.

Seventy-seven percent had never had an agricultural course.

Ninety-four percent indicated ownership of all or part of the land farmed.

Fifty-two percent felt that they had made less money than they had expected during the previous two years because of:

Weather
Price situation
Production costs
Soil fertility
Government farm controls
Market conditions

Forty-eight percent felt that they had done as well as or better than they had expected because of:

Their own skill
Soil fertility
Favorable weather
Price situation
Use of fertilizer

Their outlook for the future is generally pessimistic. Seventy-eight percent indicated that they felt that the future outlook for farming would generally be worse or at least no better than it is at the present, and 65% of those questioned indicated that they had no definite plans for increasing their income during the next five years. The 35% who did have some plan for increasing their income indicated that it would be done as follows:

Plan	Percent*
Change in livestock program	74
Change in row crop program	21
Cultivating more land	18
Increased use of commercial fertilizer	10

*Multiple answers

Management practices other than fertilization. Fifty-six percent indicated that they did not rotate their two most important crops. Only 11% indicated that they rotated with hay crops, while 16% indicated that their two most important crops (which in many cases was either cotton or corn) were rotated with cotton or corn.

Only 1% was irrigating their two most important crops, even though a large portion of their farming failures were attributed to the uncertainty of weather.

The Survey

The survey was conducted by personal interviews, and the project was so designed that separate results were available for the nation as a whole and for the individual regions within the country.

The questionnaire used in interviewing the farmers was developed in collaboration with a special industry committee and members of the National Plant Food Institute staff. Before it was used for the final survey, it was pretested in order to determine if their replies could be considered objective.

The questions asked related specifically to the farmer's two most important crops, excluding tobacco. In the Southeastern region these two crops were largely cotton and corn. Tobacco was eliminated as a principal crop in the Southeast because it was known that large amounts of fertilizer are already used on this crop, and it appears that there is relatively little potential for increased usage.

The sample drawn in this study included those operators (exclusive of share-croppers) who were farming more than 100 acres of land. This eliminated 54% of the total number of farms as listed by the Census Bureau, but it included 92% of the total farm land in the country.

OSCAR & PAT

(Continued from page 15)

wheelbarrow in our main aisle, one outside on the loading platform and two in the parking lots where the highway traffic could see them."

"Himmel, what good would that do?"

"People would see those wheelbarrows filled with garden stuff and it would make them want to buy, Oscar. We'd get impulse sales."

"Ach, people would only charge it."

"You have to scratch your head to get display ideas the other fellow hasn't got," Pat said. "That makes your store stand out so people notice it, and you get more store traffic and more sales."

"That's just what my dad says," put in Tom Culpepper.

Oscar paled. "I will watch those wheelbarrows and what you haf in them, McGillicuddy. I will keep track of how much we sell and how much people steal and who pays cash and who charges schtuff. You will see how crazy you are." And with that he stomped off into the office.

"Gee," said Tom Culpepper. "And I thought my dad got grouchy now and then."

"My old man only spanks me about three times a week," said Fatty, rubbing his rear softly. "But I wouldn't want that man for a daddy! Come on —let's go play ball!"

West Virginia Plans Agronomy Field Days

MORGANTOWN, W.VA.—Dates have been set for two agronomy field days to be held during the summer, the West Virginia University Agricultural Experiment Station announced here.

The first field day will be held at the Reymann Memorial Farms near Wardensville on June 24. The second field day will be on July 24, at the Ohio Valley Experiment Substation at Pt. Pleasant.

Much of the experiment station research in agronomy is conducted at these two locations. Research at the Reymann Memorial Farms deals with livestock and agronomy, under the climatic and soil conditions prevalent in the eastern part of the state. Research at the Ohio Valley Substation deals with farming conditions and crops as they exist in the Ohio Valley and the westernmost counties.

Programs featuring research and new developments are being planned for each of the field days.

PESTICIDES

(Continued from page 8)

000 lb. calcium arsenate were applied.

Arkansas reported 1,100,000 acres treated for cotton insect control in 1957 at a cost of $15,400,000. The same trend toward increased application of organic phosphates took place as in Louisiana. The shift from dusts to sprays was not marked. Nearly 1,500,000 lb. calcium arsenate were used in Arkansas in 1957. The leading dusts were those containing BHC, toxaphene and malathion in descending order while the leading sprays, also in descending order, were methyl parathion (including Guthion), toxaphene, and the aldrin group (aldrin, dieldrin, endrin and heptachlor).

In 1956 about 95% of the cotton crop in California was treated with insecticides, most of this by commercial pest control operators. Only 10 to 25% of the acreage was grower-treated. Of the 1,761,481 acre-treatments by operators, 95.7% were by airplane. Sprays comprised 70% of all operator treatments.

Large-Scale Operations

A number of insect species are responsible for serious damage to the forests, livestock ranges and crop lands of the U.S. Certain migratory pests breed in low-value ranch lands as on federal or state owned land. State and federal funds may be used to assist the land owners in protecting many times the acreage actually treated. By the nature and extent of the terrain and the time limitation, much of the control must be in the form of chemicals applied from the air. The following areas were treated by airplane in the main programs of the U.S. Department of Agriculture in 1957:

	acres
Gypsy moth	**2,902,507**
Spruce budworm	**1,380,000**
Grasshoppers	**1,738,651**
Mediterranean fruit fly	**400,000**
Beet leafhopper (federal and state)	**350,000**
Miscellaneous	**100,000**

Last year's cooperative federal-state gypsy moth eradication program in the Northeast began April 22, 1957, and was completed June 14. A total of 2,484,494 gal. DDT-oil spray was applied in the New York, New Jersey and Pennsylvania area under federal contract. Additional spraying under state contracts was completed on 105,820 acres in Pennsylvania, 200,000 acres in New York, 53,874 acres in Connecticut, 120,000 acres in Massachusetts, 16,300 acres in Rhode Island, and 18,880 acres in Michigan, with small areas totalling 130 acres elsewhere in New England.

Cooperative grasshopper surveys made during the late summer and fall of 1957 showed the potential infestation of crop lands to be generally lighter than in the fall of 1956. Infested range areas total 18,700,000 acres in 17 western and midwestern states. Surveys of the hatch of young hoppers this spring will show where in these areas control measures will be needed. Drouth and other factors have resulted in grasshopper populations remaining at a rather constant level for several years. However, improved conditions for grasshopper development have reversed the trend and indications point to rather heavy increases in populations over the next several years.

The U.S. Forest Service used considerable quantities of pesticides in forest insect control programs in 1957. A total area of 1,496,053 acres infested with spruce budworm was treated by aerial application of one pound DDT an acre. Other projects involved DDT at the same rate against sawflies, Great Basin caterpillar, Saratoga spittlebug, and cone and seed insects.

The major use of benzene hexachloride was for the control of bark beetles by ground application at the rate of 1 to 1½ lb. a tree in southern and southeastern states. Ethylene dibromide was used mainly for the control of bark beetles by ground application in the Rocky Mountain and western states.

Malathion was employed for the control of needle miner and pests of forest tree nurseries; orthodichlorobenzene to control bark beetles in Colorado, Wyoming and South Dakota; and chlordane to control forest tree nursery pests. 2,4-D and 2,4,5-T weedkillers were applied in programs for the control of blister rust and oak wilt diseases. Requirements for pesticides by the Forest Service in 1958 are expected to be about the same as in 1957.

The program to eradicate the Mediterranean fruit fly from Florida has been so successful that the last state quarantine restriction against the fly was lifted on Feb. 25. All areas had been previously released from federal quarantine May 21, 1957. About 34,000 traps are expected to be operated during the coming summer months to find if any infestations are not yet finally stamped out.

The program to eradicate the imported fire ant is supported by a federal appropriation of $2,400,000, along with considerable state and local funds in the infested areas. The federal funds are largely to aid states in financing their control operations. This destructive and annoying pest now infests more than 20,000,000 acres in nine southeastern states from North Carolina to Texas and Arkansas. In the cooperative federal-state-local eradication program now under way, about 125,000 acres had been treated by April 1 in South Carolina, Georgia, Alabama, Louisiana and Texas. Another 250,000 acres are scheduled for treatment by the end of June. Insecticides used in the program are heptachlor and dieldrin in granular formulations which do not adhere to dry vegetation.

The loss of corn grown for grain from damage attributed to the European corn borer in 1957 was estimated to be nearly 181,000,000 bu., or about 6% of the total national crop. This compares with a loss of about 98,000,000 bu. in 1956. It was exceeded in 1954 when the loss amounted to over 191,000,000 bu. Of the 1957 crop, 102,000,000 bu. were lost in Iowa alone. According to a survey last fall, corn borer numbers declined in the eastern U.S. and built up in most north central states, thus reversing a trend of recent years.

It is believed generally that reduction of crop acreages under provisions of the Soil Bank will stimulate interest in use of chemicals to obtain maximum production on the land retained in crops. The buildup in populations of destructive insects on reserved acreages and the resulting migration to adjacent cropland have received less attention as a factor in raising pesticide requirements. The extensive acreage taken out of production of such crops as cotton and corn through the acreage reserve, however, could reduce pesticide consumption in some areas.

The National Highway Program to build a 41,000-mile network of interstate highways will involve large continuing requirements of materials for maintenance. Pesticides, especially herbicides, will be necessary for the economic development and upkeep of roadside landscaping. Some recent information shows the extent of expenditures along existing highways. The Chemical Subcommittee, Committee on Roadside Construction and Maintenance, American Roadbuilders' Assn., surveyed the 1955 roadside use of pesticides, and found that the following amounts were

(Continued on page 20)

ADVERTISEMENT

The Bulletin Board

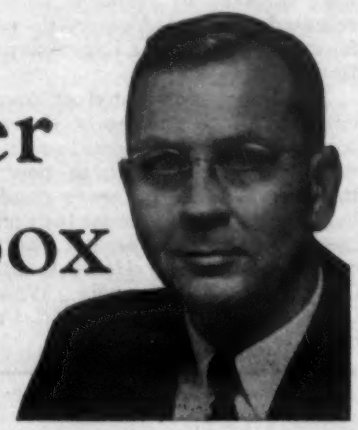
No. 34 in a series from the Spencer Chemical Magazine, "Today's Fertilizer Dealer"

The Spencer Question Box

Edited by

Proctor Gull

***Chief Agronomist*, Spencer Chemical Co.**



"The Question Box" is one of the most popular features of TFD, Spencer Chemical Company's magazine for fertilizer dealers. Questions submitted by dealers are answered by Proctor Gull, head of Spencer's 7-man field agronomy team. Here are a few timely questions and answers from recent issues of TFD.

1. QUESTION: What is the best method and rate of application for fertilizing soybeans?—Earl W. Mahan, Lake Village, Ind.

ANSWER: As mentioned before in this column, soybeans do not always respond as well to fertilizer as other crops. If soybeans are properly inoculated, they will probably take care of their own nitrogen requirements, especially after the plant is well established.

If the land is not highly productive, 100 to 150 pounds of a 1-4-4 ratio fertilizer such as 5-20-20 should get the beans off to a good start. Since soybean seedlings are quite sensitive to fertilizer injury, especially when the fertilizer is in contact with the seed, I would not go much higher than this rate as a starter application.

This brings up the possibility of a plow-down application. If you have a soil with a high fertility level, and have fertilized your preceding crops quite heavily, then perhaps a broadcast and plow down application preceding planting would not be profitable. If the preceding crops have not been fertilized adequately, then we would recommend plowing down mixed goods containing phosphorus and potash, the ratio used depending on soil test. This would be in addition to starter.

For that matter, a combination of plow down fertilizer and row fertilizer is generally the best way to raise good crops and increase soil fertility level. Many farmers who have increased their rates of fertilization have done it all with their row application.

This practice, along with higher analysis materials and poor placement, has resulted in salt injury and stand reduction in many cases. On corn, 200 pounds of a 5-20-10 starter gives us only 30 pounds of soluble salt (N and K_2O), which is safe enough under most conditions. For the rest of the fertilizer requirement, we think it best to plow it down.

2. QUESTION: What is the difference in feeding value between fertilized and unfertilized corn?—Donald W. Potter, Pengilly Farm Service, New Ulm, Minn.

ANSWER: Research scientists at various colleges have found that the protein content of corn can be raised by a good fertility program. This is especially true where the starting fertility level is low. Under such conditions, the protein content of the corn might be raised as much as 3%.

On some sandy soils in Minnesota where 120 pounds of actual nitrogen was applied per acre, the corn yield jumped from 30 to 104 bushels per acre, and the protein content of the grain went up 2%. Increasing the amount of nitrogen to 180 pounds increased the protein content another per cent. This protein increase means substantially greater feeding value over the unfertilized corn.

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FARM SERVICE DATA

Extension Station Reports

Results of outlying cotton fertilizer tests at 10 locations have been released by the University of Arkansas' Agricultural Experiment Station.

Tests were completed at seven locations in 1956. Three of these tests were continued in 1957 and tests were completed at three new locations in 1957. Tests were conducted in cooperation with local farmers and county extension agents in these counties: Phillips, Hempstead, Lee, Craighead, St. Francis, Woodruff, Lincoln, Cross, Monroe and Columbia.

Researchers responsible for the tests were Richard Maples, J. L. Keogh, and L. H. Hileman. All are with the agricultural experiment station. Dr. R. L. Beacher, a former agronomist, was also a member of the research team.

According to the researchers, tests during the two years indicated these tendencies:

Harvested yields of seedcotton were significantly increased by fertilizer in 10 of the 12 trials that included major nutrient treatments —N (nitrogen), P (phosphorus), and K (potassium). Nitrogen alone increased yields in 9 of these 10 tests.

Highest yields generally occurred where N was applied at the rate of 60 lb. an acre. Yields were further increased by 90 and 120 lb. of N on heavy clay soil in Phillips County.

Applications of more than 60 lb. of N an acre, with or without P and K, delayed maturity and produced excessive vegetative growth on medium and coarse-textured soils where moisture was adequate. Where 60 lb. of N an acre was applied and P and K were used as needed, yields of seedcotton harvested were generally increased. All fertilizer treatments tended to hasten maturity on heavy clay soils.

★

Fertilizing alfalfa with needed nutrients can pay a two-to-one return for the money spent on plant food, according to University of Kentucky agronomists.

E. C. Doll and A. L. Hatfield, of the Lexington (Ky.) Experiment Station, report that a $3 investment in extra potash produced $6 worth of hay in tests at the station.

Mr. Doll and Mr. Hatfield added various amounts of potash to alfalfa plots which previously had received adequate applications of phosphate fertilizer.

Alfalfa yields averaged 2.1 tons per acre on the "no-potash" check plot.

When 60 lb. of potash per acre was added, yields increased to 2½ tons. The fertilizer cost $3 and the extra hay it produced was worth $6.

Mr. Doll reports that yields were 2.6 tons per acre when 120 lb. of potash was added; 2.7 tons with 240 lb. and 2.6 tons with 480 lb. of potash.

Dry weather reduced hay cuttings to two during 1957, he says. Under conditions like those prevailing last growing season, Mr. Doll believes 60 lb. of potash will give a good response in central Kentucky. However, in years where more cuttings are possible, 120 lb. of potash per acre would be more suitable.

★

Reduced cotton acreages have increased the efforts of many farmers to get higher per acre yields at lower cost.

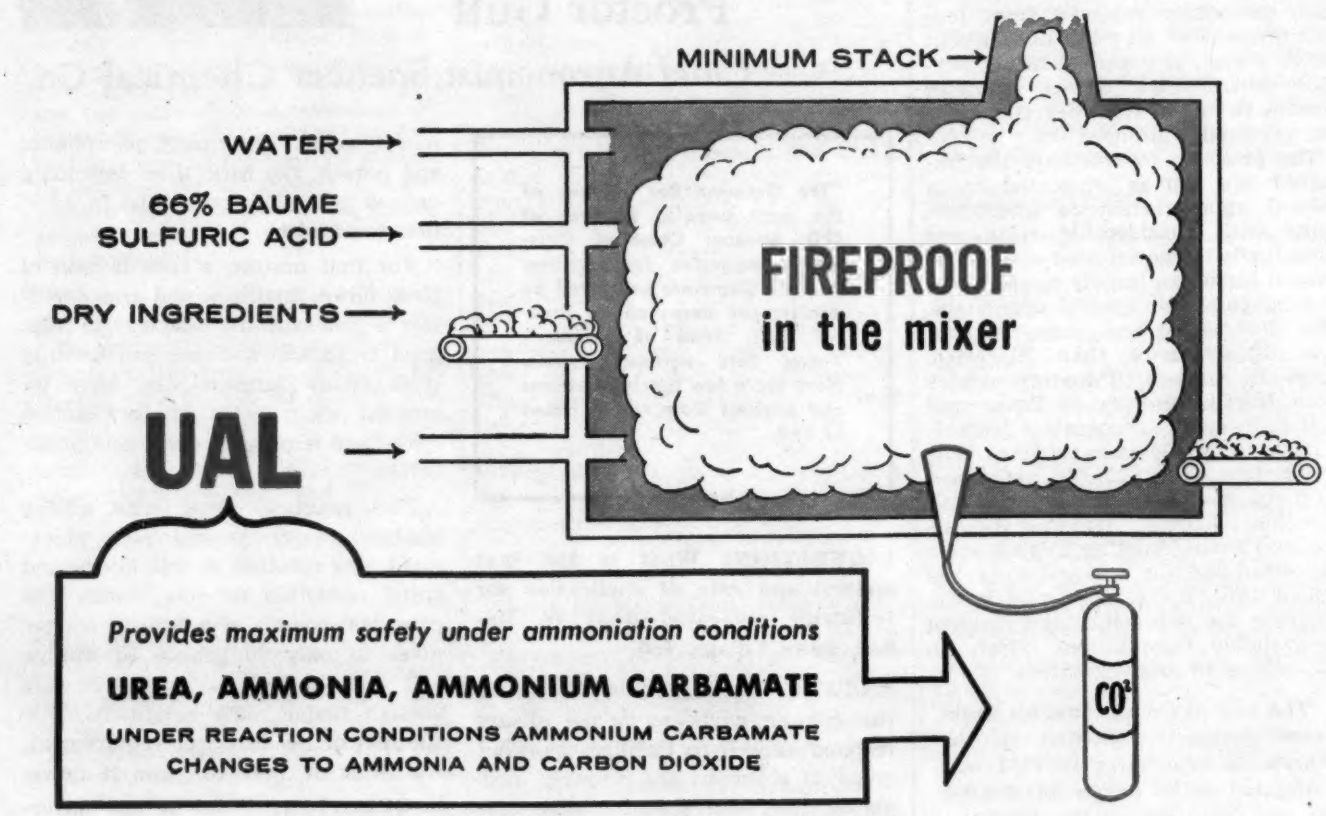
M. C. McKenzie, Clemson Agricultural College extension engineer, points out that application of chemicals at planting time to control crabgrass and certain weeds is being tried by many farmers to cut production costs. The first four to six weeks after planting is a critical time for the crop. If frequent rains in this period bring up weeds and grass and prevent tractor cultivation, only the ample use of expensive hand hoeing will save the crop from disaster.

Mr. McKenzie says that for a cost per acre of only $2.50 to $4, the cotton grower can protect his early cotton in this critical first six weeks and also can save up to $20 per acre or more on his hoeing bill.

"Two tested and proved cotton herbicides recommended for South Carolina use again this year are 'CIPC' and 'Karmex' or Diuron," he states. "'CIPC,' an emulsifiable concentrate, dissolves readily in water and can be applied with the conventional weed or insect sprayer. Compounded at the rate of 4 lb. of active chemical per gallon, application rates vary from about 3 lb. for heavy soils down to 1.5 lb. per acre for light sandy soils, applied in 12- to 16-inch bands.

"'Karmex' or Diuron, a wettable powder put up as a paste, used at the rate of 3 lb. active chemical per gallon requires stirring or agitation to keep it in suspension. Spray equipment converted to use Diuron should have a coarse 50-mesh screen installed in the suction strainer. A nylon-roller pump is preferable to a gear pump with this material, as it is designed to handle wettable powders with less wear. This pump also has a larger capacity than the gear pump, which is desirable in that the greater amount of liquid being by-passed to the tank helps keep the mixture stirred sufficiently," he adds.

He suggests that farmers planning to use cotton pre-emergence chemicals should check the following points: Prepare seedbed carefully and have it free of sticks, clods, and trash; assemble pre-emergence sprayer on same tractor as planting equipment and adjust nozzles to spray a 12- to 16-in. band centered over the seed; plant to a stand. If possible, by hill-dropping or drilling to further reduce need for hand hoeing; calibrate tractor spray rig and planter carefully for accurate, high-speed planting and spray application; plan for adequate water supply and spray mixing facilities in the field as well as improved fertilizer handling to avoid costly delay in the planting



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operation; and give your pre-emergence chemicals a chance to work. Leave the treated bands undisturbed until the germinating crabgrass seedlings are killed.

The chemical does not prevent seeds from germinating, the engineer points out, but it kills the seedling root as soon as it appears. The quicker the grass is germinated after spraying, the better kill the chemical gives, as it slowly loses its strength over a period of weeks. Sprayed bands should not be plowed, chopped, or have dirt thrown on them as long as they are giving weed control.

Many farmers have had grass- and weed-free beds for as long as 6 to 10 weeks after planting with the use of these pre-emergence applied chemicals.

Pyrethrum Growers Name Appointees

NEW YORK—Appointment of sales agents in Great Britain and the setting up of an expanded research program in Africa and Europe have been announced by the pyrethrum growers of Africa. Biddle Sawyer & Co., Ltd., London, were named as agents for the United Kingdom and Ireland of the pyrethrum boards of Kenya and Tanganyika and the Societe Cooperative des produits agricoles of the Belgian Congo, the three principal cultivation areas for pyrethrum. The announcement was made by Norman H. Hardy, executive officer of the pyrethrum board.

At the same time, announcement was made of the establishment in England of European technical headquarters headed by Dr. T. F. West, formerly a director of Drug Houses of Australia, Ltd.

In Kenya, where the only laboratory devoted exclusively to technical research into pyrethrum is already in operation, Dr. Alan Goldberg has been named director of scientific services. Dr. Goldberg is internationally known for his research in chemotherapy and toxicology.

A third appointment announced is that of J. Huntley, an engineer, of Hull, England, as manager of a new plant under construction at Nakuru, Kenya, for the extraction of pyrethrins. Nakuru also is headquarters of the Pyrethrum Board of Kenya and the site of the African laboratory.

Slow Shipments Trim IMC Sales, Earnings

CHICAGO—International Minerals & Chemical Corp. has reported net earnings after taxes of $882,000, or 33¢ per common share, for the third fiscal quarter ended March 31, compared with $2,422,000 or 99¢ per common share in the corresponding period a year ago. Net sales amounted to $26,682,000 for the three months ended March 31 compared with $30,677,000 a year ago. Earnings before taxes were $1,192,000 for this year's third quarter, compared with $3,179,000.

Louis Ware, IMC president, said sales and earnings declines resulted primarily from a delayed start of high volume spring shipments of fertilizer materials. Adverse weather conditions and a general buyer awareness of ample supplies and prompt delivery facilities caused the postponement of order placement, Mr. Ware said. He added, however, that shipments have mounted steadily during April and the volume in many areas is now running ahead of the corresponding period last year.

Another factor affecting the year-to-date performance, he said, was lower potash export shipments.

VIRGINIA SALES

RICHMOND, VA.—First quarter fertilizer sales in Virginia totaled 218,551 tons, compared with sales of 277,124 tons in the first quarter of 1957, the Virginia Department of Agriculture reports.

Virginia Schedules Fertilizer Grade Hearing

RICHMOND, VA.—A public hearing to establish official fertilizer grades for 1958-59 has been scheduled for June 5 at the Capitol in Richmond by the Virginia Fertilizer Grade Committee.

According to the committee, proposed changes under consideration include: deletion of grades 0-14-14, 0-15-30, 12-12-12, 13-13-13, 14-14-14 and tobacco grade 6-12-4; addition of 0-9-27; replacing 0-16-8 with 0-20-10; deletion of either 4-12-8 or 4-16-8; replacement of tobacco grade 6-12-15 with 5-10-15; replacement of 19-52-17 with 20-10-15.

Buys Helicopter

DEMING, N.M.—A new Bell helicopter has been purchased by the New Mexico Air Contractor Co. of Deming, believed to be New Mexico's only commercial helicopter crop-dusting firm. Jack Smith, president, says the helicopter will be used to dust and spray crops in the Mimbres and Rio Grande valleys.

V-C Reports Reduced Net Income for 9 Months

RICHMOND, VA.—Virginia-Carolina Chemical Corp. reports its income for the nine-month period ending March 31, 1958, after income taxes, was $311,694 as compared with $361,690 for the same period of last year.

Net income was primarily affected by reduced sales in the fertilizer division, it is explained. Delay of the planting season by prolonged and unusually severe winter weather in all sections of the country is given as principal reason for the reduction. Additionally, the number of acres under cultivation were fewer due to the soil bank program, the report added.

Sums for University Research Projects Listed

BERKELEY, CAL.—Six donors gave more than $11,000 to the University of California's division of agricultural sciences during March to promote various studies in the field of agricultural chemicals.

The largest was a grant of $5,000 made by the Abbott Laboratories for research on metabolism and residue of gibberellic acid. Second in size was a gift of $3,000 from the Dow Chemical Co. for the evaluation of palatone and cyclotene. Another $2,000 was given by the National Canners Assn. for research on color retention in green vegetables. The Pacific division of the American Can Co. gave $1,000 for a study of phytophthora infections through field investigations. Five hundred dollars was given by the American Chemical Paint Co. for spray thinning experiments; and $300 by the California Avocado Society for root rot studies on avocados.

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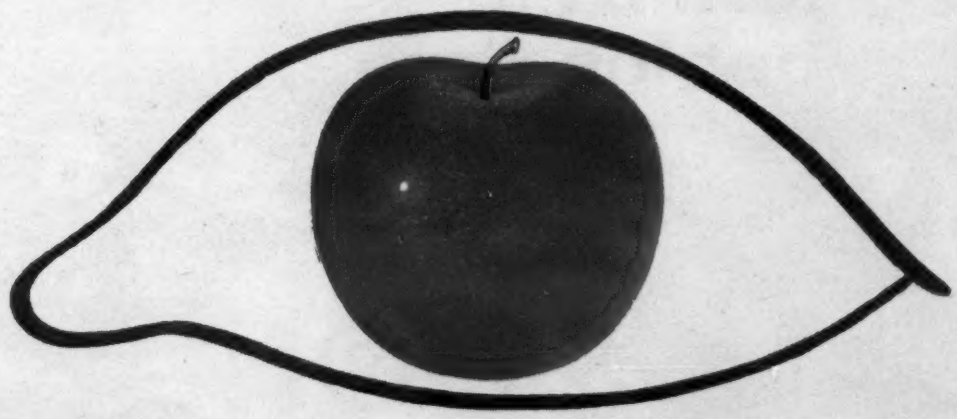

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GRASSHOPPERS

(Continued from page 1)

tween Florence and Maricopa, at widths ranging from one to two miles. The objective was to prevent the grasshoppers from entering the cropland, and was described as being largely successful. Some crops were damaged, however, and several thousands of acres of cotton will have to be replanted. This will place those farmers under a considerable handicap, Mr. Mendenhall explained, since the planting season was already late due to bad weather conditions, and starting all over again at this time increases the difficulty.

Three planes were kept busy spraying the desert strip for over a week, applying aldrin at the rate of 2 oz. to one gallon diesel oil an acre, the entomologist said. Farmers involved had hired additional custom operators to control the grasshoppers already in the fields. This private effort to halt the infestation had taken place earlier, but Gov. Ernest McFarland declared a state of emergency, thus releasing state and federal funds for control.

Airplane pilots flying from Phoenix to Tucson during the infestation reported sighting clouds of the insects at altitudes as high as 5,000 ft. One such flight was dense enough to trip off air defense command alarms, it was reported.

While the worst of the infestation is thought to be over, the grasshoppers continue to pose a threat to crops grown in the area.

NPFI

(Continued from page 1)

ject by Dr. Richard B. Bahme, Western district representative; Zenas H. Beers, Midwest regional director; Dr. Samuel L. Tisdale, Southeast regional director; Dr. Robert L. Beacher, Southwest regional director; Dr. Willard H. Garman, Northeast regional director; and F. Todd Tremblay, Pacific Northwest district representative. W. R. Allstetter, vice president of the Institute, will introduce the panel members. The annual business meeting will follow.

In the afternoon, a panel discussion will be conducted on "Changing Farmers' Fertilizer Practices" sponsored by the Institute's Research and Education Committee, with A. H. Bowers as chairman and moderator. Other speakers and subjects for the panel are: Orville Buerge, Buerge Brothers, Harrisonville, Mo., on "The Dealer's View;" J. W. Clark, Dane County agricultural extension director, on "The County Agent's View;" and Harry Rash, president, First National Bank, Thayer, Kansas, on "The Banker's View."

On June 17, the session will open with a film presentation on "The Salesman," a Fortune film production, followed by the time-lapse film presentation by Mr. Ott. A memorial resolution will be presented by the chairman of the Institute's Memorial Committee, and the feature address of the session will be delivered by Mr. Scribner.

The annual banquet will be held the evening of June 17, at which Dr. Russell Coleman, executive vice president of the Institute, will present scrolls to the two winning editors in the sixth annual nationwide "soil builders award for editors" contest, and following will be an entertainment program.

A special ladies' program will include a garden party, film presentation on "Flower Fantasy" by Mr. Ott, tennis and golf tournaments, bridge and canasta party and golf putting contest.

PESTICIDES

(Continued from page 17)

spent in 44 states representing 820,757 miles:

Herbicides	**$628,320 on 7.3% of mileage**
Insecticides	**68,848 on 2.0% of mileage**
Fungicides	**nil**

An independent survey showed a similar expenditure in 1956 with slightly over $800,000 planned for 1957.

The acreage of crops, forests, etc., treated with pesticides from the air in 1956, according to the Annual Survey of Aerial Work Aviation Activities made by the Civil Aeronautics Administration, was 5.5% above 1955. Acreages treated in 1956 were distributed as follows: 6.9% in Region 1 (Northeast, to and including Ohio, Kentucky and Virginia), 38.0% in Region 2 (Southeast and South, including Oklahoma and Texas), 13.5% in Region 3 (North Central states, except Ohio and Kentucky), and 41.6% in Region 4 (Mountain and Pacific states).

The distribution of aerial activities in pest control and defoliation for 1955 was 6.0, 41.2, 11.4 and 41.4% respectively for the four regions, according to revised data. The aerial application of dry materials was 23.6% lower in 1956 than 1955 while the volume of liquids rose 8.1%. The results of a survey for 1957 have not yet been tabulated.

The acreage treated by aircraft for pest control in California rose from 296,059 in 1946 to 5,611,000 in 1956. The treated area in California in 1956 was almost twice that in 1951.

Value Increases

The value of sprays and dusts handled by farmer cooperatives rose continually in the period from 1951-55. It was as follows by fiscal years:

1951-52	**$33,153,000**
1952-53	**34,750,000**
1953-54	**37,863,000**
1954-55	**44,731,000***

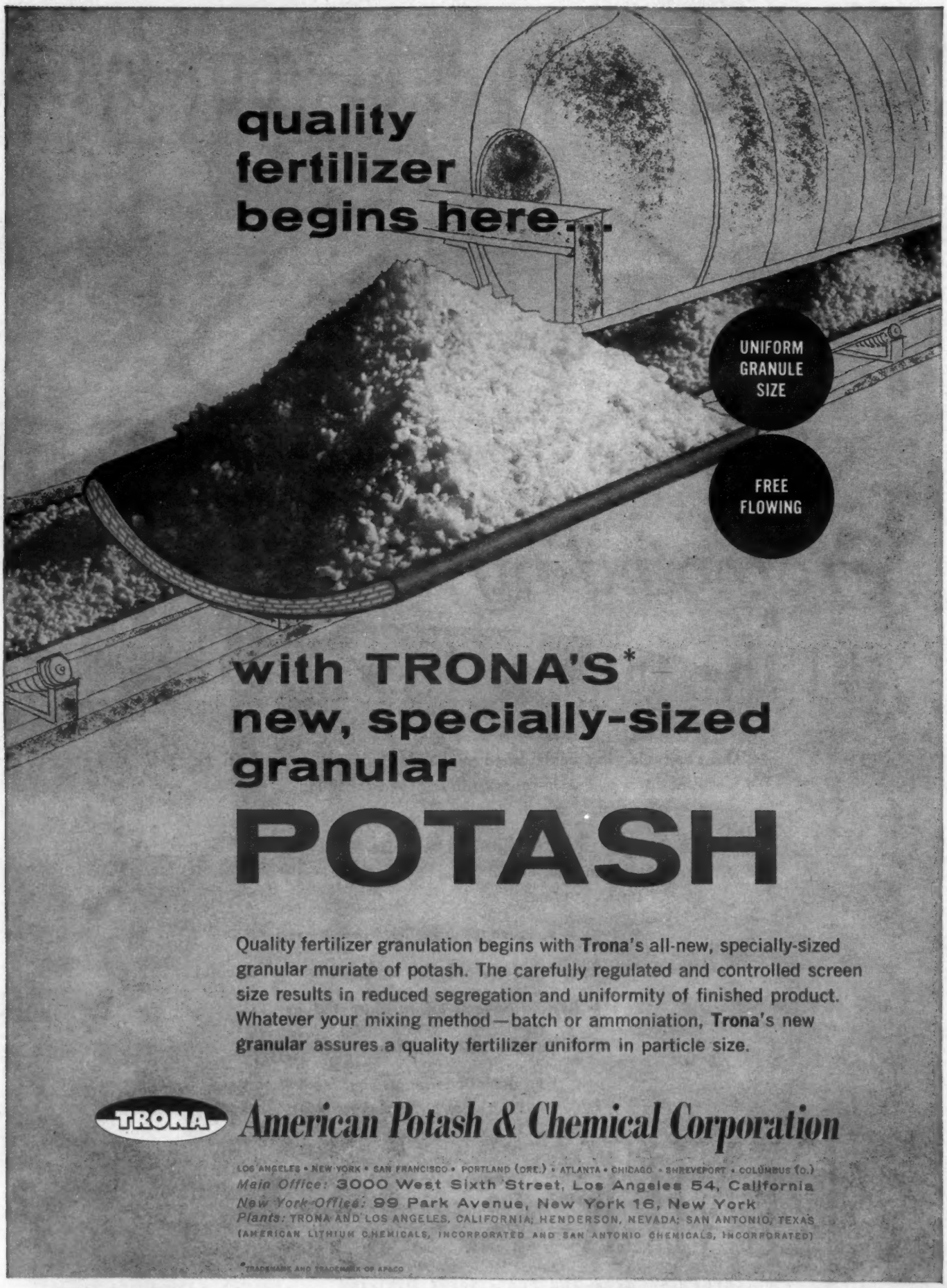
*** Preliminary: Additional data will be available later this year.**

Consumption of rosin by the insecticide and disinfectant industry declined markedly between 1951 and 1954. It appears to have leveled off for the present at about 725,000 lb. a year.

U.S. production of DDT for the crop year 1956-57 was 129,730,000 lb., about 8,000,000 lb. less than the previous crop year but still much ahead of earlier years. Production in the period from Oct. 1, 1957 through January 1958 amounted to 37,269,000 lb., compared to 43,669,000 lb. in the same period of 1956-57.

Producers' and mixers' stocks of DDT Sept. 30, 1957 were down to 75 to 80% of the 1956 inventories; over half of the 1957 stocks were in the possession of the primary producers of DDT.

Exports of DDT rose to 61,069,000 lb. during the 1956-57 crop year, 11.4% higher than the previous year.



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Producers of: BORAX • POTASH • SODA ASH • SALT CAKE • LITHIUM • BROMINE • CHLORATES PERCHLORATES • MANGANESE DIOXIDE *and other diversified chemicals for Industry and Agriculture*

Exports reported for the fourth quarter of 1957 amounted to 13,760,000 lb., up 3,028,000 from the same period in 1956. In addition to shipments abroad in 1958 for private use, about 35,000,000 lb. of 75% DDT have been purchased this year for malaria control abroad. January 1958 exports of DDT totaled 3,294,000 lb., of which 1,061,000 lb. comprised technical material, 1,916,639 lb. were in the form of the 75% formulation, and the remainder were mixtures containing 20 to 74% DDT.

Domestic disappearance of DDT at the producers' level in 1956-57 was about 71,000,000 lb. The approximate annual issue of DDT for U.S. military use in various formulations as well as the technical chemical amounts to over 1,000,000 lb.

Production of benzene hexachloride (gamma basis) during the crop year ended Sept. 30, 1957 amounted to 9,376,000 lb., down to about 69% of the 1955-56 figure. These figures, however, are incomplete because the lindane (99% gamma) grade BHC is not included.

During the 1956-57 crop year, 2,200,000 lb. of BHC (gamma basis) were exported, off 38% from the previous twelve months. Domestic disappearance for the year appears to have been under 7,000,000 lb. of gamma BHC. Export data and disappearance estimates include the lindane grade. Generally the production of BHC reaches a low in the fourth quarter of each year. Since the high level of production in the spring of 1956, however, the quarterly figure has dropped steadily to the end of 1957.

Combined production of the aldrin, chlordane, dieldrin, endrin, heptachlor and toxaphene group during the 1956-57 crop year amounted to 73,914,000 lb., compared to 80,424,000 lb. for the previous twelve months. In 1957 use of these chemicals for boll weevil control suffered in some areas from competition by phosphorus insecticides and calcium arsenate.

Organic phosphorus insecticides, such as malathion and methyl parathion, continue to grow in importance. Parathion ('ethyl parathion') remains of major significance. Other phosphates in increasing numbers are in pilot plant or commercial production. Over a dozen of these have been registered under the Federal Insecticide, Fungicide and Rodenticide Act, mostly for application as sprays and dusts to a variety of crops. Others are limited to seed treatments or to internal medication of certain livestock.

Lead arsenate production in 1957 was equal to or slightly above the 1956 level. The 1956 figure for calcium arsenate production has been revised upward by nearly two million pounds to 27,106,000; production in 1957 dropped to about 20,000,000 lb., presumably because of the competition of organic phosphates for the control of resistant strains of boll weevil on cotton.

End of season stocks of lead arsenate were lower in 1957 than 1956, while calcium arsenate inventories rose. Although sales of low-lime calcium arsenate reported for Louisiana went up somewhat in 1957, total sales of calcium arsenate there appeared to have been less than 60% of 1956 sales.

Imports of white arsenic for arsenical manufacture rose to 10,135 short tons in 1957 from an average of 6,822 for the previous two years. With domestic production at about the average level, the additional imports would in part replenish year-end stocks which were at a five-year low of 4,896 tons.

Most inventories of insecticide grade cryolite reported by non-basic manufacturers are owned by California firms. Sales in Louisiana in 1957 are said to have been only 31,850 lb.

Pyrethrum imports during 1957 were valued at $2,554,433. Of these, $802,989 worth were extracts. The value of pyrethrum imports for the 1956 calendar year amounted to $2,989,000.

In 1956, 93% of the imports of pyrethrum extract were from British East Africa, while in 1957 Belgian Congo furnished 50% and British East Africa only 45%. These extracts contain 25% pyrethrins while Japanese extract is understood to contain 15%.

Estimated in terms of flowers, U.S. imports of pyrethrum by crop years have been fairly uniform since 1951, varying in the seven-year period from 6,700,000 to 8,100,000 lb. flower equivalent with an annual average of 7,385,000 lb. having a content of nearly 100,000 lb. pyrethrins.

Recent announcement of the discovery of potent new derivatives of chrysanthemumic acid related to the pyrethrins has aroused fresh interest in synthetic pyrethrum-like insecticides. Some of these compounds were shown to be equal to or better than pyrethrum or allethrin as insecticides. Production costs would be less than for allethrin.

Imports of rotenone-bearing root, whole and ground, in 1957 were valued at $873,282. The total value for the calendar year 1956 amounted to $1,183,399, mostly Peruvian cube. Most rotenone from countries other than Peru is from Guatemala, Brazil, Ecuador and French West Africa. Following the 1952 and 1953 crop years when imports were at a ten-year low, shipments of rotenone materials arriving in the U.S. have held steady between 5,900,000 and 6,400,000 lb., with a crop year average of 6,239,000 lb. However, reports of stocks in the possession of insecticide manufacturers indicate these were about 32% higher Sept. 30, 1957, than a year earlier.

Nicotine production in the U.S. appears to be virtually a thing of the past. The principal producing plant for many years was at Richmond, Va.; production here was discontinued early in the fall of 1957. Exports of nicotine sulfate have risen each year recently from 200,000 lb. in 1954 to 450,000 lb. in 1957, possibly as the result of competition by synthetic phosphorus insecticides for domestic use.

Increased imports of sabadilla seed were reported recently.

Ryania sales in Louisiana the past season were approximately the same as for 1956, just under 2,500,000 lb. of 40% material. This insecticide, derived by grinding the woody parts of a South American tree, is used principally in the control of the sugarcane borer. The borers averaged to infest 22% of the joints of the 1957 Louisiana cane crop, compared with 14% in 1956 and 24% in 1955.

Information as to the volume of sales of insect repellents for human use in the U.S. is limited in the main to the following data derived from surveys by the Chemical Specialties Manufacturers Assn.:

1940—273 gallons
1945—18,905 gallons
1953—11,512 units under ½ pint, plus 24,880 gallons (unit volume not indicated)
1954—275,195 units under ½ pint, plus 1,555 units ½ pint or over
1955—1,036,270 units (about 80% in small containers)
1956—752,676 units (about 80% in small containers)

Military requirements may not be included in these figures, at least for some of the years given. Annual issue for U.S. military use is about 300,000 two-ounce units of skin-type repellents. A number of firms now produce diethyl meta-toluamide recently developed as a mosquito repellent.

(Additional statistical tables and text on the Pesticide Situation for 1958 will be carried in subsequent issues of Croplife)—Ed.

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Croplife®

A WEEKLY NEWSPAPER FOR THE FARM CHEMICAL INDUSTRY

The regional circulation of this issue is concentrated in the Southern states.

Optimism Develops Out of Gloom Felt Earlier

AFTER a disappointingly slow start this season, fertilizer and pesticide deliveries are reported now to be moving out in good volume, and the trade is looking with optimism upon the general picture in most parts of the country.

Extremely cold, wet weather hamstrung agricultural activities from California to Maine during the early portion of the season when farmers are normally out in their fields applying fertilizers and preparing for the growing season. To some fertilizer companies, the late-season blizzards and rainstorms meant the loss of much business, some officials having reported sales declining as much as 33% behind those of the same period last year.

But chins are up now, according to numerous reports from tradesmen. They feel that with the return of decent weather conditions over most of the nation, sales will continue to accelerate and the final tally at the end of the season may be far more acceptable than anyone dared predict even a few weeks ago.

It is encouraging to note that the villain in the early 1958 lack of sales was the weatherman, rather than a recession-smitten farm economy. Farmers, it seems, are not only ready, but eager to get going on their work of the year, and were irked at the long delays encountered this spring.

Farm machinery sales serve as an illustration of confidence on the part of farmers. The Wall Street Journal reports that purchases of farm tractors and implements have hit a brisk stride this spring, and that this upturn reflects the "growing prosperity of many rural areas."

It could be that while city families are fighting the recession by slowing down on their expenditures, farmers are benefiting from rising incomes which might well reflect in greater amounts of fertilizers and pesticides being used. If the growers are smart, and we believe most of them are, they will recognize that the more these chemical tools are used, the greater will be the margin of profit because of reduced production cost per unit.

Indications that farm income is on the upgrade and that farmers are "getting over their fear of buying," as one dealer observes, help to make a sound base for continued optimism in the trade.

Insect Situation Heralded By Entomologist Network

THROUGHOUT the summer months, a network of federal and state employed entomologists is busy in fields and wooded areas checking on insect populations, noting conditions that might develop into infestations, advising farmers on what to do to prevent or control insect pests in crops, and checking other aspects of the bug situation.

Since news of developments must travel fast and accurately, routes of information are set up and if there should be an infestation of significant importance anywhere, other entomologists may be alerted. In a recent bulletin, the U.S. Department of Agriculture describes the workings of its system, which it likens to national defense crews who spot planes and relay information quickly to nerve centers where effective action may be taken.

Working with USDA's agricultural research service to alert the nation to insect developments in each state, are scientists in land-grant colleges, researchers at state and USDA experiment stations, extension specialists, county agricultural agents, employees of state departments of agriculture, and other workers.

The Entomological Society of America helps guide activities through an advisory committee of public agency and industry representatives. The means of communication is the "Cooperative Economic Insect Report," a weekly publication, through which agriculturists are alerted to possible population growths of insects such as the cotton boll weevil, European corn borer, and the grasshopper. Growers are kept aware of insect buildups that might spread to their areas.

Entomological surveys reported in the publication help industries gear production of insecticides according to potential needs. One section acquaints readers with insects not known to occur in the United States, since many serious pests (Mediterranean fruit fly, khapra beetle, and the spotted alfalfa aphid) have been introduced from abroad. Art sketches and descriptions help surveyors detect insect invaders.

Information gathered by volunteer entomologists is funneled to clearing houses in each state, the USDA explains. The clearing houses forward weekly summaries varying from one paragraph to eight single-spaced typed pages to the plant pest control division in Washington, D.C.

Some 1,500 condensed statements were received by the Economic Insect Survey section during 1957, an average of 31 a week. In addition to the state summaries, special control program reports arrive from four regional plant pest control offices. They are located in Moorestown, N.J., Gulfport, Miss., Minneapolis, Minn., and Oakland, Cal.

At some times, reports arrive from a few states, at other times, from almost all of them. (The record for one week is 45 condensed statements received from states.) During the height of the insect season—April through September—summaries are larger and more frequent. There is less activity from October to March.

State and regional reports are condensed for the weekly report and mailed to 2,800 persons in federal and state agencies, industries, and other interested individuals.

This includes information, for example, on the grasshopper. Counts are based on the number of grasshoppers found per square yard. Fall surveys indicated heaviest infestations this year will be in Texas, Montana, Arizona, and California. Other infestations are reported from Nebraska, Idaho, Nevada, New Mexico, Oregon, Utah, Washington, Wyoming, and Oklahoma.

The pesticide industry is in a much better position to cope with insect situations in the matter of getting supplies of materials to the right spot at the right time, because of this type of information. Few situations are more frustrating in the lives of pesticide people, than to find out too late that a big market for materials is at hand, but the supply is too little, and additional quantities would arrive too late.

In its "Insect and Plant Disease Notes" column each week during the active season, Croplife acts as a further outlet for information on what is doing in the pesticide field. We are happy to render this service to the trade.

Quote

"Observations throughout the South over the past 8 to 10 years have brought forth very strikingly the fact that well fertilized crops make more efficient use of water than improperly fertilized crops. For example, research done a few years ago in Alabama shows that the amount of water required to make a pound of Sudangrass hay was almost cut in half by the use of only 100 lb. nitrogen. This was true regardless of whether the crop was irrigated or unirrigated. An interesting sidelight here is the fact that the irrigated grass used water more efficiently than the unirrigated.

"Since the water supply is very often the limiting factor determining practical use of irrigation on farms, the possibility of stretching the supply of water in this way is extremely important."—Dr. Robert W. Pearson, Principal Soil Scientist, USDA.

Croplife's Home Office

Croplife

BPA — *Member of Business Publications Audit*

NBP — *Member of National Business Publications*

CROPLIFE is a controlled circulation journal published weekly. Weekly distribution of each issue is made to the fertilizer manufacturers, pesticide formulators and basic chemical manufacturers. In addition, the dealer-distributor-farm adviser segment of the agricultural chemical industry is covered on a regional (crop-area) basis with a mailing schedule which covers consecutively, one each week, four geographic regions (Northeast, South, Midwest and West) of the U.S. with one of four regional dealer issues. To those not eligible for this controlled distribution Croplife subscription rate is $5 for one year ($8 a year outside the U.S.). Single copy price, 25¢.

LAWRENCE A. LONG
Editor

DONALD NETH
Managing Editor

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EXECUTIVE AND EDITORIAL OFFICES — 2501 Wayzata Blvd., Minneapolis, Minn. Tel. Franklin 4-5200. Bell System Teletype Service at Minneapolis (MP 179), Kansas City (KC 295), Chicago (CG 340), New York (NY 1-2452), Washington, D.C. (WA 82).

Published by
THE MILLER PUBLISHING CO.
2501 Wayzata Blvd., Minneapolis, Minn.
(Address Mail to P. O. Box 67, Minneapolis 40, Minn.)

Associated Publications—The Northwestern Miller, The American Baker, Farm Store Merchandising, Feedstuffs, Milling Production.

MEETING MEMOS

June 16-19—Western Society of Soil Science, Logan, Utah.

July 11-12—Pacific Northwest Section, American Society of Range Management, Summer Meeting, Kamloops, B.C.

Oct. 29-31—Fertilizer Industry Round Table, Sheraton Park Hotel, Washington, D.C.

Nov. 18-20—Washington State Weed Conference, Moses Lake, Wash.

EDITOR'S NOTE: The listings above are appearing in the Meeting Memos for the first time this week.

May 15-23—Series of Fertilizer Meetings sponsored by the Virginia Polytechnic Institute Agricultural Extension Service; May 15 at Virginia Agricultural Experiment Station, Blacksburg; May 21 at Piedmont Research Station, Orange; May 22 at Eastern Virginia Research Station, Warsaw; May 23 at Southside Research Station, Charlotte.

May 19-21—Chemical Specialties Manufacturers Assn., Midyear Meeting, Netherland Plaza Hotel, Cincinnati.

May 21—Pacific Northwest Regional Grain Sanitation Committee, Spring Meeting, Walla Walla, Wash.

May 21-24 — Western Chapter, National Shade Tree Conference, Disneyland Hotel, Anaheim, Cal., C. E. Lee, 601 W. 5th St., Los Angeles 53, Cal., secretary-treasurer.

May 22-23—Soil Science Society of North Carolina, First Annual Meeting, Williams Hall, North Carolina State College, Raleigh, N.C.

June 4—Executive Committee, Fertilizer Safety Section, National Safety Council, Hotel Roanoke, Roanoke, Va. Time: 9 a.m.

June 5-6 — Pacific Northwest Grain Dealers Assn., Annual Convention, Davenport Hotel, Spokane, Wash.

June 9-11—Association of Southern Feed & Fertilizer Control Officials, Heart of Atlanta Motel, Atlanta, Ga., Bruce Poundstone, University of Kentucky, Lexington, Ky., Secretary-Treasurer.

June 12-14 — Manufacturing Chemists' Assn., 86th Annual Meeting, The Greenbrier, White Sulphur Springs, W.Va.

June 15-18—National Plant Food Institute, Annual Meeting, Greenbrier Hotel, White Sulphur Springs, W. Va.

June 18-19—Annual meeting, American Grassland Council, North Carolina State College, Raleigh.

June 25-27—Pacific Branch, Entomological Society of America, San Diego, Cal.

June 28—Del-Mar-Va Peninsula Fertilizer Assn., Annual Meeting, Ocean City, Md.

July 8-10—Pacific Northwest Plant Food Assn., Ninth Annual Regional Fertilizer Conference, Pocatello, Idaho.

July 13-15—Plant Food Institute of Virginia and North Carolina, Summer meeting, Cavalier Hotel, Raleigh, N.C.

July 17-18—Southwest Fertilizer Conference and Grade Hearing, Buccaneer Hotel, Galveston, Texas.

July 29-30—Annual Fertilizer Industry Conference Sponsored by the Alabama Polytechnic Institute Experiment Station; Black Belt Substation near Marion Junction, Ala. (July 29) and Prattville, Ala. Experiment Field (July 30).

July 30—Kentucky Fertilizer Conference, Greenville, Ky.

Aug. 20-24—Canada Fertilizer Assn. (formerly Plant Food Producers of Eastern Canada), Annual Meeting, Manoir Richelieu, Murray Bay, Quebec.

Sept. 4—Grassland Field Day, Rutgers University Dairy Research Farm, Beemerville, N.J.

Oct. 14-15—Western Agricultural Chemicals Assn., Annual Meeting, Villa Hotel, San Mateo, Cal., C. O. Barnard, 2466 Kenwood Ave., San Jose 28, Cal., Executive Secretary.

Oct. 20—Annual Sales Clinic of Salesmen's Assn. of the American Chemical Industry, Inc., Roosevelt Hotel, New York.

Oct. 20-21—Fertilizer Section, National Safety Council, annual fall meeting, La Salle Hotel, Chicago, Ill.

Oct. 22-24—Pacific Northwest Plant Food Assn., Annual Meeting, Gearhart, Ore., Leon S. Jackson, P.O. Box 4623, Sellwood-Moreland Station, Portland, Ore., secretary.

Oct. 28-29—Northwest Garden Supply Trade Show, Masonic Temple, Portland, Ore.

Oct. 29-31—National Agricultural Chemicals Assn., 25th annual meeting, Bon Air Hotel, Augusta, Ga.

Nov. 9-11—California Fertilizer Assn., 35th Annual Convention, Ambassador Hotel, Los Angeles, Sidney H. Bierly, 475 Huntington Drive, San Marino 9, Cal., General Manager.

Nov. 24-25—Entomological Society of America, Eastern Branch, Annual Meeting, Lord Baltimore Hotel, Baltimore.

Dec. 1-4—Entomological Society of America, Annual Meeting, Hotel Utah, Salt Lake City.

Dec. 3-5—Agricultural Ammonia Institute, Annual Meeting, Morrison Hotel, Chicago, Jack F. Criswell, Claridge Hotel, Memphis, Executive Vice President.

Dec. 9-11—Chemical Specialties Manufacturers Assn., Annual Meeting, Commodore Hotel, New York.

Dec. 17-18—Beltwide Cotton Production Conference, Rice Hotel, Houston, Texas, sponsored by the National Cotton Council.

CALENDAR FOR 1958-59

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Joins Vulcan Staff

CHICAGO—Herbert F. Fagot has joined the Chicago sales staff of Vulcan Containers, Inc., Bellwood, Ill., maker of steel pails and drums. He will sell the firm's full line of containers in the chemical trade as well as in other industries. Mr. Fagot was formerly with the products division of U.S. Steel Corp.

OKLAHOMA FIELD DAY

STILLWATER, OKLA.—The 18th annual field day at the Wheatland Conservation Experiment Station near Cherokee has been scheduled for May 22.

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Classified advertisements accepted until Tuesday each week for the issue of the following Monday.

Rates: 15¢ per word; minimum charge $2.25. Situations wanted, 10¢ a word; $1.50 minimum. Count six words of signature, whether for direct reply or keyed care this office. If advertisement is keyed, care of this office, 20¢ per insertion additional charged for forwarding replies. Commercial advertising not accepted in classified advertising department. Display advertising accepted for insertion at minimum rate of $11 per column inch.

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International Minerals & Chemical Corp.

Johns-Manville Corp.
Jones, Robin, Phosphate Co.

Kalo Inoculant Co.
Kent, Percy, Bag Co.
Kraft Bag Corp.

Maas, A. R., Chemical Co.
Merck & Co.
Meredith Publishing Co.
Meyer, Wilson & Geo., & Co.
Miller Chem. & Fert. Corp.
Monsanto Chemical Co. 11

National Distillers & Chemical Corp.
National Potash Co. 7
Naugatuck Chemical Div., U. S. Rubber Co.
Niagara Chemical Division
Nitrogen Div., Allied Chemical & Dye Corporation
Northwest Nitro-Chemicals, Ltd.

Olin Mathieson Chemical Corp.

Pacific Coast Borax Co.
Penick, S. B., & Co. 19
Pennsalt of Washington Div. of Pennsalt Chemical Corp. 4
Phillips Chemical Co., a subsidiary of Phillips Petroleum Co. 8
Potash Company of America

Raymond Bag Co.

Shattuck, S. W., Chemical Co.
Shell Chemical Corp. 12, 13
Simonsen Mfg. Co.
Sinclair Chemicals, Inc.
Smith-Douglass Co., Inc.
Smith-Rowland Co., Inc.
Sohio Chemical Co.
Southern Nitrogen Co.
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Spraying Systems Co.
Standard Oil Co.
Stepan Chemical Co.
Stewart-Warner Corp.
Suamico Eng. Corp.
Successful Farming

Tennessee Corp.
Tiura Mfg. & Sales Co.

Union Bag-Camp Paper Corp.
U. S. Borax & Chem. Corp.
U. S. Industrial Chemicals Co.
U. S. Phosphoric Products Division 23
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